AFRICA, ASIA AND AUSTRALASIA





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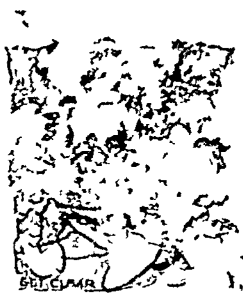
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TO THE TEACHER

THE last book dealt with the New World—the western hemisphere. In this book the eastern hemisphere—*the Old World*—is taken as the basis of study, a survey of Africa, Asia and Australasia being its main concern. The more intricate study of Europe will be attempted in the next book. In this way the Major Natural Regions of the World will have been surveyed, with varying detail, in each continent.

A twofold reading of this book is suggested :—

I. The book as a whole—in order to obtain some idea of the Old World as a unit. This reading should be fairly rapid, but the atlas and maps should be freely used to locate places, and geographical knowledge.

II. The second reading might be taken chapter by chapter, with an attempt at the individual work at the end of each.

Much of this individual work consists of mapping exercises, which, if kept together by the pupil, will make a valuable summary of the geography course.

The questions emphasize the *facts* of the geography, so that a correct groundwork of fundamentals is obtained. At the same time they are usually a test of the actual reading matter of each chapter.

The children will be delighted to tackle the further suggestions for individual effort on the "*Something for You to Do*" page (21). In this way the geographical

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teaching can be made truly *human* and real—and very fascinating to children. They will be making a text-book of their own, which will not only give them great pleasure, but will be of lasting value as a permanent reminder of their study of the Old World Hemisphere. [The teacher should supply the necessary blank maps.]

It is very necessary that each pupil should have an atlas with good physical maps. This should be studied in close connection with the text.

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The writer tends his grateful acknowledgments to the following for permission to use photographs: The Air Ministry; The Aircraft Operating Co.; Office Français du Tourisme; H.M. East African Dependencies Publicity Office; South African Publicity Bureau; Cadbury Ltd.; Indian State Railways; Malaya Publicity Bureau; Intelligence Branch, Australia House; New Zealand Publicity Bureau; W. F. Taylor; Egyptian Travel Bureau: and Exclusive News Agency.

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CONTENTS

Many smaller aerial views illustrate the text.

THE OLD WORLD HEMISPHERE

ONE convenient method of studying world geography is to divide the earth into two parts :—

1. The Americas—which form the Western Hemisphere.
2. The rest of the World—known as the Eastern Hemisphere.

Looking at a globe, or at a map of the world, we see that the Eastern Hemisphere consists of the continents of Europe, Asia, Africa and Australasia. Together these take up much the larger part of the globe.

The greater part of this large area is often called *the Old World*, as against the name of the New World which usually refers to the Americas.

In this book we shall study many of the important regions of the Eastern Hemisphere, and how the peoples in them earn their livings to-day, and why.

In every region we should try to find out :—

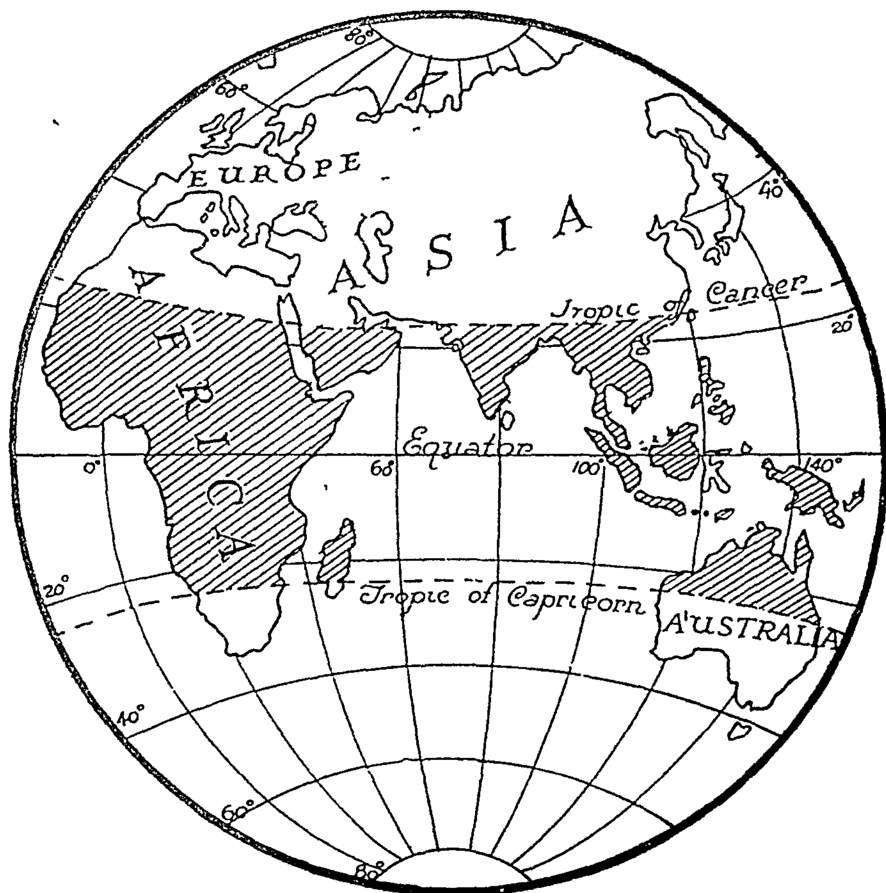
1. What kind of region it is—climate, vegetation, etc.
2. What kind of people live there—their homes, habits, etc.
3. What kind of work the people do there.

Often we shall be able to see very quickly that the people and their work are what they are—because of the kind of region in which they live.

Let us look first at the eastern hemisphere as a whole, in order that we can get some idea of the differences of climate that must exist in such a large area.

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Follow the Equator from west to east, noticing the countries it passes through, and the lands to the north and south of it. Next look at the regions that lie be-



THE EASTERN HEMISPHERE.
The lands between the tropics are shaded.

tween the tropic of Capricorn to the south, and the tropic of Cancer to the north. The lands lying between the two tropics could be roughly described as *Tropical Regions.*

Now notice the lands north of the Arctic Circle, and (if any) the lands south of the Antarctic Circle. Such regions will all be very cold, and will consist of *Tundra*, mainly regions of ice and snow at all seasons of the year.

The remaining regions between each tropic and the above circles will be lands that we shall expect to be neither very hot, nor very cold—and so, for the present, we might call them the *Temperate Regions*.

However, when we wish to study the temperatures of the many regions more closely, a more useful way of dividing up this enormous area will be as shown on the maps on page 102. These show clearly the hottest and coldest regions in July, and the hottest and coldest regions in January. By combining these two maps we can find out something of the climate of different regions during the year. (Note that such maps are made as if all the regions were at sea level. Mountain regions are thus much cooler—1° F. for every 300 ft. above sea level.)

It is very important that you should always keep in mind that the seasons in the southern hemisphere are opposite to those in the northern hemisphere. This means that January will be summer time in, say, Australia and New Zealand, while July will be winter time.

On a blank map of the world, paint black the western hemisphere (the Americas). In the eastern hemisphere put in the boundaries of each of the continents—Europe, Africa, Asia, and Australasia—and colour each of them with a different c[illegible] Give your map the title "The New World and the Old World."

II

EUROPE AND AFRICA

In our studies of the Americas we noticed a certain balance north and south of the Equator in the Natural Vegetation. We found some of the reasons for this by studying the temperature and rainfall maps in winter and summer. We also discovered that *when* the rainfall occurred (i.e. the *Seasonal Rainfall*), had a very important influence on the type of Natural Vegetation.

As the Americas reach almost from Pole to Pole the vegetation of regions in all latitudes could be studied.

A map of the world shows that Europe and Africa also reach almost as far north and south as the Americas. Let us see whether there is a similar difference in the types of vegetation in the various regions north and south of the Equator, and whether those differences are the same as those in the Americas.

Natural Vegetation.—The map on page 55 shows the types of Natural Vegetation in Europe and Africa. But it must be remembered that this map shows only what would grow if Nature were left alone. In the regions where most people live the natural vegetation is often removed, because the people wish to grow something more useful to themselves.

North and south of the equator the following types of Natural Vegetation are to be seen :—

1. The *Equatorial Forest* of the Congo basin.
2. The *Savannahs* and *Tropical Grasslands*—north, south, and east of the forest belt.

3. The *Hot Deserts*—of the Sahara and the Kalahari.
4. The *Mediterranean Type* of Evergreen trees and shrubs—as in North Africa and the Mediterranean Lands, and in the extreme south-west of South Africa.
5. The *Steppe Lands* of South Russia, and a somewhat similar type of Temperate Grassland in South Africa, known there as the Veld.
6. The *Temperate Forests,* mainly of *broad-leaved trees* that shed their leaves in winter, as in north-west Europe and the British Isles.
7. The *Coniferous Forests* that spread right across northern Europe—from Norway to Russia and right across northern Asia to the Pacific.
8. The *Tundra*—on the shores of the Arctic Ocean.

It will be interesting to try to find out some of the reasons for the various types of vegetation, and why they are found where they are.

Temperatures, Winds and Rainfall.—In our studies of the Americas we became familiar with maps showing the differences in temperatures in winter and summer, with maps showing the differences in the amount of rainfall in winter and summer, and with the Seasonal rainfall map, which shows at what season most of the rainfall (if any) occurs.

Let us study similar maps of Europe and Africa, so that we may understand some of the causes of the different vegetation in the various regions.

Temperatures.—We have already studied briefly maps which show the varied temperatures of the eastern hemisphere. Look more closely now at Europe and Africa

only, on each of the maps on page 102, and notice first in January and then in July :—

1. The regions that are hottest.
2. The regions that are coldest.
3. The regions that have the same temperatures as the British Isles.
4. The regions that have the same temperatures as the lands round the Mediterranean Sea.

Combine these two maps and work out a list of the regions that :—

1. Are hot all the year round (over 70°).
2. Are cold all the year round (below 32°).
3. Are very hot in summer and are very cold in winter. i.e. have an *extreme* climate.
4. Are hot in summer and mild in winter—as in the Mediterranean lands.
5. Are not very hot in summer. and not very cold in winter—as in the British Isles and Western Europe.

Notice from the map of Natural Vegetation, the vegetation that goes with each of these temperature regions.

Rainfall. Now let us study the amount of rain falling in the various regions during the winter months and during the summer months—as seen on the maps on page 119. These maps, when looked at together, show that Europe and Africa can be divided into 4 main regions :—

1. The areas with *rain all the year round*—as in Equatorial regions and north-west Europe.
2. The areas where the rain falls *mainly in summer*—as in the Sudan, and the regions north and south of the Tropical Forest.

3. The areas where the rain falls *mainly in winter*—as in the Mediterranean lands, and the south-west tip of South Africa.
4. The areas with *hardly any rain* at any season—as in the Sahara desert north of the Equator, and the Kalahari desert south of the Equator.

The Seasonal Rainfall map on p. 154 gives these areas more clearly, so that they can be seen at a glance.

The *Annual Rainfall map* on the same page shows the amount of rain received in each of the regions.

Copy the following chart, and by comparing the Seasonal Rainfall Map with the map of the Natural Vegetation, fill up the blank columns.

Seasonal Rainfall	Type of Vegetation	Regions in Africa and Europe
At all seasons -		
At no season -		
Mainly in summer		
Mainly in winter -		

Hence we begin to see that there is a connection between temperature, amount of rain, seasonal rain and the natural vegetation—similar to that which we discovered in the Americas.

Winds and Rainfall.—So far we have not considered the winds. You all know that the rainfall or absence of rainfall depends on the winds and their direction.

In the last book we discovered that the winds affecting the Americas arranged themselves into some kind of

III

THE ATLAS REGION. MEDITERRANEAN LANDS

We have now considered, generally, the climate of Europe and Africa together, from north to south.

Although Europe is only a small continent, yet most of the important nations of the world live there to-day.

So important is Europe that it requires a book to itself. Hence we must leave the study of Europe *until next year*, and in this book give our attention mainly to the continents of Africa. Asia. and Australasia.

Africa will be the first continent to study, and as we have already learnt something of the climate of its many different regions, we shall now commence to study the more important of these regions in detail.

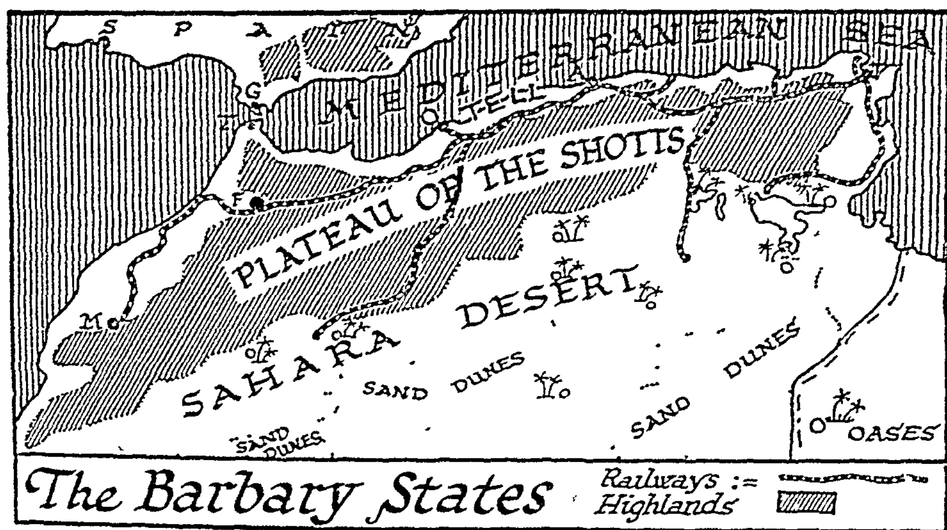
The Lands of the Mediterranean Sea.—Our first studies of Africa will be of the African lands bordered by the Mediterranean Sea. The Mediterranean Sea is a large inland sea reaching far into the land mass of the Old World, and washing the shores of Southern Europe. Eastern Asia, and North Africa.

The Atlas Region.—The Straits of Gibraltar are the gateway to the Mediterranean Sea from the Atlantic Ocean, and separate Spain from North Africa. Morocco. Algeria, and Tunis are the three important states of what is sometimes called *North-West Africa* or the *Atlas Region*—a region that is different from the rest of Africa and is more like southern Europe than Africa.

These three states are mainly under French control, and are the most valuable part of the French Empire in

Africa. (Notice how near France is, on the other side of the sea. Measure the distance across the Mediterranean Sea from Marseilles to Algiers.)

The states of north-west Africa are known usually as the *Barbary States*, because they were the original homes of the Berber people. But along the coast, especially in the larger towns such as Tangier. Algiers and



The Barbary States — Railways; Highlands

Tunis, people of many races live and work. Europeans, especially French and Spanish are to be seen; but Moors, Berbers, Arabs and Jews—all of whom have white or brown skins—form the chief population.

Three Main Regions.—The physical map of the Barbary States helps us to remember much of their geography. From north to south, for some miles inland, three separate regions are crossed :—

1. Between the northern edge of the Atlas Mountains and the sea lies a fertile region, consisting of a narrow

coastal plain, a series of parallel valleys, and the northern slopes of the Atlas Mountains. This region runs from Tangier to Tunis and is known as *the Tell*; it is the most valuable part of the Barbary States.

2. South of the Tell is a broad area of highland running from west to east. It is chiefly a region of plateau bordered to the north by the Little Atlas Mountains and to the south by the High Atlas and the Saharan Atlas Mountains. The plateau enclosed by these mountains is dry and barren in many parts. It is known as *the plateau of the Shotts*, because of the number of salt lakes or "shotts" that it contains.

3. South of the High Atlas begins the real desert—the northern fringe of the enormous *Sahara*. But in this borderland are many fertile *oases*, some so large that villages of thousands of people are able to exist there.

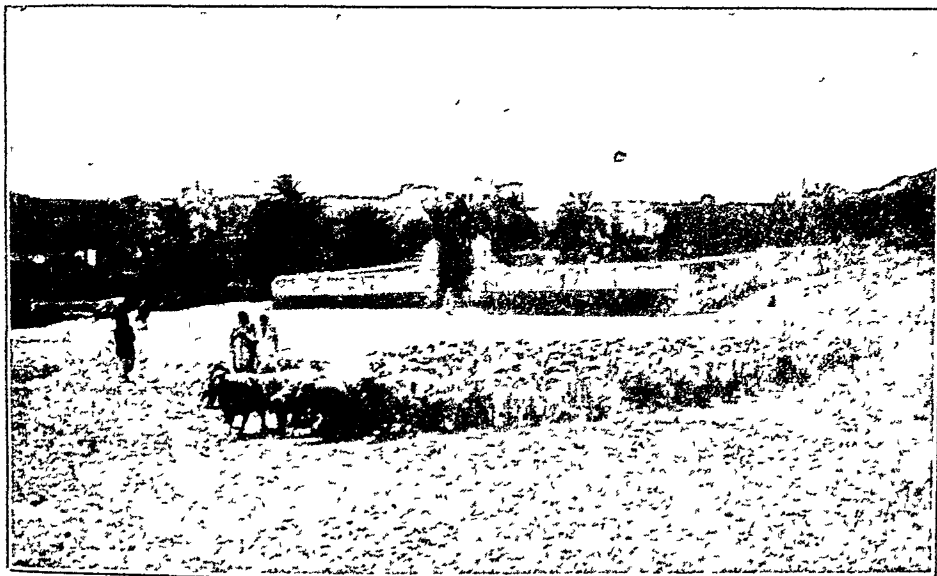
The Climates of the Regions.—The temperature and rainfall maps show that the Tell region, which lies between the Atlas Mountains and the Mediterranean Sea has a climate very similar to the Mediterranean lands of southern Europe. It has hot summers, mild winters, and the rainfall occurs mainly in winter.

The Atlas Mountains act as a broad barrier to the winds and rainfall from the north-east, so that the farther one travels south from the Tell, the drier the regions become. For example, the plateau of the Shotts receives much less rain than the Tell, and consequently is a region of poor steppeland, where a dry grass is the usual vegetation. Hence the few inhabitants of the Shotts are mainly shepherds.

Still farther south, in the rain shadow of the southern

edge of the Atlas Mountains, hardly any rain falls, so the land has a distinct desert appearance. It is the northern edge of the vast Sahara—the largest desert in the world.

The Products of the Tell.—As can be easily imagined, the Tell region is the most important part of the Barbary States, the climate being the most favourable for vege-



MARKET DAY.
Sheep leaving an oasis town near the northern fringe of the Sahara desert.

tation and agriculture. Its Mediterranean type of climate is suitable for cereals such as *wheat* and *barley*, and all kinds of *sub-tropical fruits* are grown, such as grapes, olives, oranges, lemons, figs and dates. The hill slopes facing north are usually wooded with *evergreen cork-oak trees* or cedars.

Towns, Ports and Railways.—The map of the Barbary States shows that the most important towns are

in the Tell region, and that these are joined by a railway which naturally runs in a west to east direction parallel to the Atlas Mountains, but usually some miles inland.

Railways from all the large ports join this railway, which also sends branches into the less fertile regions of the Shotts plateau and even into the desert.

Algiers is the chief town and port of the Barbary States, and much of the Mediterranean produce of the fertile Tell is exported from this port, once famous as a headquarters of pirates.

Tunis, Oran and Casablanca are other ports which export much of the produce they receive from the Tell and the Shotts to France.

The state of Tunis produces large quantities of wheat and olive oil, which are exported from the port of Tunis to Europe.

This region of North-West Africa is a region quite different from any other part of Africa. Bounded on the north and east by the Mediterranean Sea and on the west by the Atlantic Ocean, it is definitely cut off from the rest of Africa by the great barrier of the Sahara desert to the south. The Sahara is a barrier far more difficult to cross than any sea or ocean. The peoples—and their lives and work—north and south of this great desert barrier are very different from each other.

1. You have been on a voyage round the Mediterranean Sea. On a blank map print the name of every country in this region, and one important town for each country.

2. On a blank map of the Atlas Region colour each of the natural regions as follows—the Tell (green),

the Shotts (brown), the Sahara (yellow). Put in the chief railways and towns.

Something for You to do.

I. Collect as many pictures and maps as you can to do with each of the chapters in this book.

II. Get a scrap book, note book, or loose-leaf case, and paste the pictures and maps you collect into this book.

III. Be careful to keep the pictures and maps to do with any chapter in the same part of the book.

IV. Copy drawings that would make good pictures for this book.

V. Work out the exercises given at the end of each chapter. Place these maps and answers in their correct position in the book you are making.

VI. Put a cover on the book you make. On this cover print the title :—

My Picture Geography Book of Africa, Asia and Australasia.

VII. Note that photographs, maps and other interesting particulars can be obtained from shipping offices and railway offices. Ask your parents and friends to get some for you. They cost nothing. Newspapers and magazines will also give you many pictures of places in the various regions of the Old World, showing the life and work of its peoples.

Try to collect the postage stamps of the countries. Many of these have interesting pictures, showing something of the country and the work of its peoples.

Air mail stamps are also very interesting.

IV

THE SAHARA DESERT

Stretching right across Africa at its broadest part is the largest desert in the world. Why is there such an enormous expanse of desert in this part of the world?

The rainfall maps on page 119 show the almost entire absence of rain in this huge region. This is due to the direction of the prevailing winds (N.E.), and their consequent dry condition on reaching the Sahara. Also, south of the Sahara, the Guinea lands of West Africa receive very heavy rain from the south-east winds, but the rain gets less and less as the winds travel north, so that, by the time the Sahara is reached, the winds are dry.



The physical map shows that the Sahara region is made up of mountain, plateau, valley and plain with many dried up river courses. Hence the Sahara desert is not one vast mass of sand, as is often supposed. Only a small portion of the region is actual sandy wastes or sand dunes.

The "sand" of the sandy areas has been formed from the original rocks as follows:—The region is one of the hottest in the world by day, but at night, owing to the

absence of clouds which keep in the warmth of other parts of the earth, the rocks of the Sahara give up their heat very quickly, so that even frosts occur in some parts. These great changes from daily heat to nightly cold are such, that while the rocks *expand* in the day, they *contract* rapidly at night; this causes them eventually to split into fragments of various sizes. The strong winds batter the smaller pieces of rock against the larger pieces, and so a very fine sand is at last produced.

This sand is blown into high *sand dunes*, which give an undulating appearance to such sandy regions. In some places these sand dunes are more than 1000 feet high.


Bedouins encamped in the desert.

Oases.—Water is occasionally found in low-lying areas, either on the surface or just below. It has gradually drained to the desert from places receiving rain many miles away. Where there is water, life of all kinds can exist—vegetation can grow, and on this vegetation animals and man can live. Consequently large settlements occur at the more important oases, some containing villages with thousands of inhabitants.

The *date palm* is the common tree at such places, [redacted] maize and millet, fruits and vegetables are cultivated. Domesticated animals of all kinds are also reared at

these oases, especially camels, cattle, asses, horses, and sheep.

The People of the Oases.—Hence the people at an oasis earn their livings mainly either as *cultivators* or as *herdsmen* or as both. But other industries are also carried on there. These industries usually deal with the products of the oasis. For example, the drying of dates for export, leather making (morocco leather made from goatskins), leather articles of all kinds, and the weaving of blankets and carpets from the wool of the sheep and camel.



Palm trees at an oasis.

Many of these products of the oasis are exported by camel caravans that regularly cross the desert by the ancient caravan routes. These routes follow the oases, so that men and animals can rest in comfort, and be sure of a further supply of that great necessity—water.

The Camel-men of the Desert.—The people who make their homes in the real desert must be nomads. Of course no one could make a permanent home in the real desert. Apart from the trading done by caravan, the nomad of the desert usually has his home at an oasis or on the fringe of the desert, where he can find pasture for his camels, horses and sheep.

The Touareg are the most famous of the true nomads

of the Sahara. These proud men are very handsome and graceful, hardy and strong, but often fierce, treacherous and cruel to their enemies. All but the poorest Touareg scorn work; their great delight is in fighting, and this joy is obtained by raiding and robbing at every opportunity.

One peculiarity of this tribe is that the *men* are veiled up to the bridge of the nose. They wear the loose flowing robes that are so useful against the sand storms, the heat of the sun, and the cold nights of the desert.

Their usual homes are tents made of small pieces of leather sewn together. These tents can be easily packed and loaded on a camel's back.

The wealth of a Touareg is measured by the number of horses, camels, sheep and cattle he possesses.

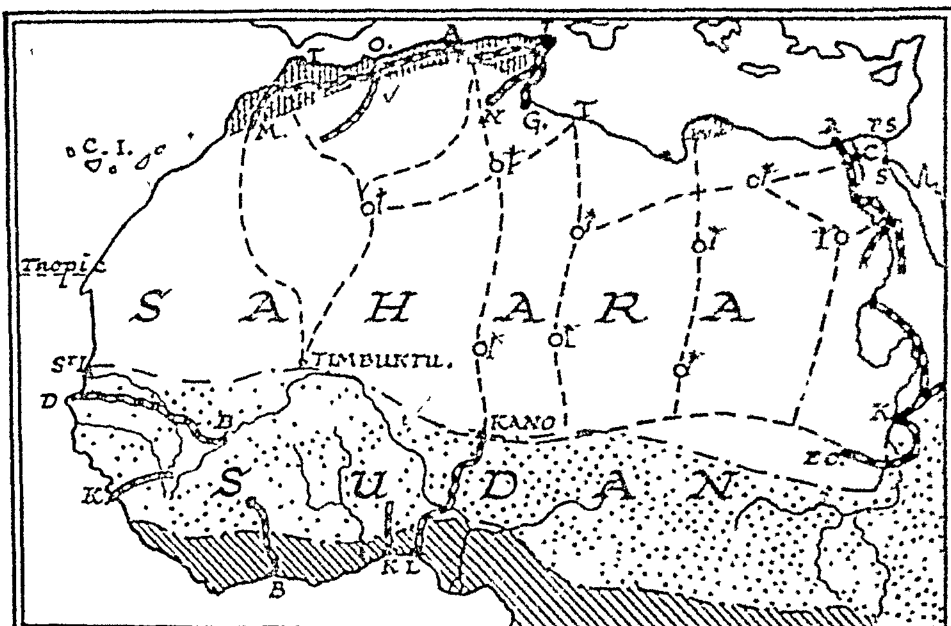
Trade and Routes.—The work of the real nomad is now mainly that of a trader, travelling from oasis to oasis with his caravan of camels laden with the goods that he wishes to sell. But caravan trading is not so important since the European has introduced railways, which at present are all near the coasts.

Mechanical transport is also being used on the fringes of the desert; and it is possible for the traveller, to-day, to go right across the desert by motor-car—from Algiers to Timbuktu.

Timbuktu and *Kano* are the two most important towns of the Sahara region, but they are really on the southern fringe of the desert. They are walled towns, situated at the meeting places of the caravan routes. To these towns come caravans of hundreds of camels from across the desert—laden with goods of all kinds.

Years ago both Timbuktu and Kano were very

important native towns in which lived hundreds of thousands of people. But to-day both towns are decaying, their populations are decreasing, and they are rapidly losing their old importance.



ROUTES ACROSS THE SAHARA & SUDAN

1. On a blank map of the Old World outline the belt of desert running right across it. Colour this desert region yellow.

2. Imagine you are a camel man of the desert. Give an account of 24 hours of your life, bringing in as much geography of the desert as you can.

V

THE SUDAN AND THE GUINEA LANDS OF WEST AFRICA

If one made the slow and dangerous journey across the Sahara from Algiers to Timbuktu, it would be noticed, just before reaching that famous town, that the desert was becoming less desert-like. Patches of *scrub* would be seen here and there.

If one continued farther south from Timbuktu—to the Guinea coast—the scrub land would gradually become more and more luxuriant, until one would find oneself in a region of *tropical grassland*, where the grass in some parts would be as tall as a man.

Still farther south a tree here and there would appear, and at last would be so common that the region would have the appearance of a park. Such lands are the *savannahs* or "parklands" so typical of the Sudan, which is the name given to the region of tropical grasslands north of the Equator and south of the Sahara desert. The Natural Vegetation map shows that such tropical grasslands cover thousands of square miles in Africa—north, south and east of the Tropical Forest region. Many wild animals such as the lion, zebra, giraffe and antelope live in these savannah lands.

But let us continue the journey south. After passing through many miles of the park lands of West Africa, the traveller cannot be many miles from the coast. The trees seem to be getting closer and closer together, so that the landscape no longer has the appearance of a

park; it is becoming *forest*. Some miles from the coast the real forest is reached—a region of jungle and dense tropical forest, with many swamps along the hot-wet coast.

Rainfall.—The above gradual changes of vegetation from desert to scrub, to savannah, to hot-wet forest is entirely due to the difference of rainfall in each of the regions. The rainfall is heaviest along the coast where it occurs at most seasons. This is because the region lies in the path of the Equatorial rains.

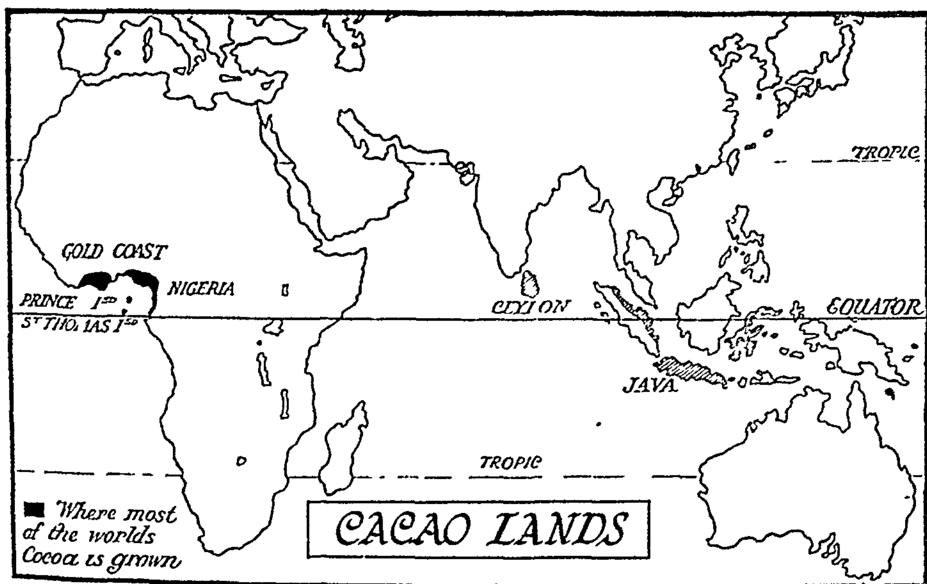
The farther inland one goes, the less the rainfall, so that the savannah lands receive their rain only in the summer months. The scrub lands farther north receive still less rain, while the desert proper, north of Timbuktu, receives practically no rain. (Study the map on p. 26.)

The Sudan of West Africa.—The peoples of the regions studied so far—namely the Barbary states and the Sahara—were mainly Berbers, Moors, Jews, or Arabs, all of whom belong to the White race. But the Sudan shows a very different kind of people. It is the home of the truly black negro. The word "Sudan" means "the land of the blacks." In the Sudan of most regions of West Africa, agriculture is the main industry of the people. Maize, rice and millet, and tobacco can be grown with great success, and cotton is becoming more and more important. Ground nuts are grown almost everywhere; the oil obtained from these nuts is used in the manufacture of margarine and soap.

Also, one must not forget that such grasslands are almost sure to be favourable for cattle rearing, just as they are the famous feeding grounds of all kinds of wild animals. Hence skins and hides will be a valuable export.

West African Farmers.—West Africa is the name usually given to the region of the western bulge of Africa south of the Sahara desert. The rainfall and vegetation maps show that it is in striking contrast to the desert farther north.

Of all the regions of West Africa the coastal lands of the Gulf of Guinea are the most important. The popula-



tion map shows that certain parts, such as Nigeria, are some of the most thickly populated parts of Africa. The population is nearly all negro; the few white men act as governors or traders dealing with the valuable products of the tropical lowlands. The natives are mainly farmers living on the produce of their fields; the farms are very small. seldom more than three acres. The women and children do much of the work in the fields.

There are no large plantations with white managers; for the West African native likes to be independent, and would rather starve on his own small farm than work for higher wages on another man's land.

Owing to the differences between the north and south of this region, in the quantity of the rain and the seasonal rainfall, the produce in the much dryer northern half is very different from that in the south. The heavy rains in the south are especially suitable for such tropical crops as cocoa, oil palms, rubber, bananas, and sugar-cane. But, in the north, few trees can live through the long dry season, and only those crops with a short growing season can be grown—such as guinea corn and millet.

British Lands in West Africa.—West Africa is shared between Britain and France. The atlas shows the various parts belonging to each.

The British colonies, there, are some of the most valuable lands of West Africa. They are Nigeria, the Gold Coast, Sierra Leone and Gambia. To-day, British rule has brought peace, security, and prosperity to these countries, and, instead of an export of thousands of slaves, the colonies are famous for the export of enormous quantities of palm oil, palm kernels, ground-nuts and cocoa. The forests are also receiving more attention, and should give a valuable export in the future. Nigeria exports large quantities of tin.

Transport.—As in other countries with valuable natural products, the great need is for better transport, so that goods can be moved easily from inland to the coast, and from there exported to the countries wishing to buy them. The British have built railways for this

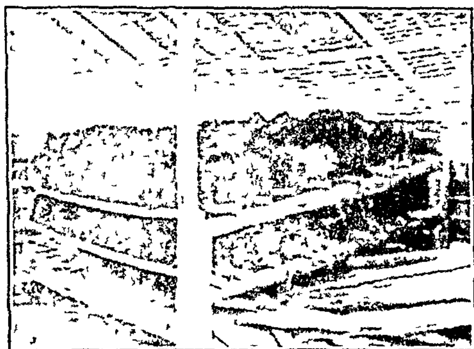
purpose in each of the West African colonies, and these are continually being added to. Roads are also receiving more and more attention, for the motor lorry and motor-car have been proved to be most valuable, as elsewhere, in linking up the country to the railways. The River Niger is the most important route through West Africa.


Gathering the fruit of the oil palm.

The Palm Oil and Palm Kernel Industry.—As this is one of the most important industries of West Africa, it should be studied rather carefully. (The oil palm tree is a tall palm similar in appearance to the coconut palm, but the fruits grow differently. A single fruit of the oil palm is about the size of a plum. These fruits grow together on the tree in thick bunches called "heads." The tree grows wild. The native climbs the palm and cuts down the heads, which weigh about 100 lbs. each. The fruits are so tightly

packed together on each head that a chisel is required to separate one from the others.

Not only is each fruit the shape and size of a plum, but it is also made in a similar manner—with a fleshy outside, a stone inside, and a kernel inside the stone. For the vegetable oil industry the fleshy part gives *palm oil*, while the kernel gives *palm-kernel oil.*



How the fruits of the oil-palm are packed.

The natives themselves obtain the palm oil from the fleshy part, because it is too soft to be transported. They do this as follows:—The fruits when over-ripe are boiled so that the oil in the flesh can escape. As the mass of flesh is pressed, the oil rises to the surface of the water, and is skimmed off. This method wastes about one half of the oil; machinery would do the work much better.

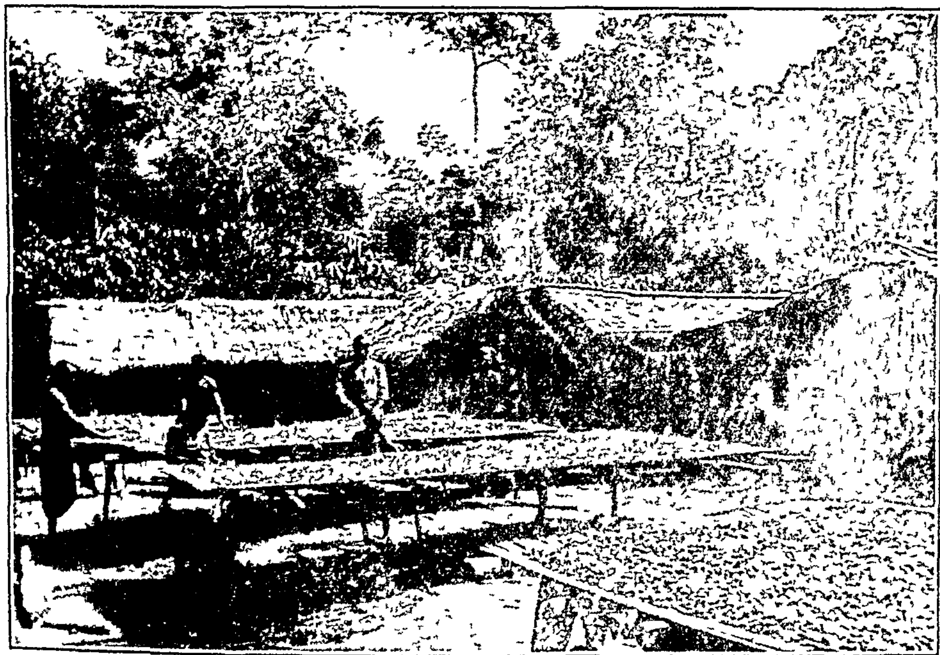
After this process is completed, the palm nut containing a kernel remains. The valuable kernel can be exported as it is, so a spare time job for the men, women and children is the cracking of the nuts in order to obtain the kernel. This is done by placing the nut on one stone and hitting it with another.

The palm oil and the palm kernels are exported to Europe, where the oil is used in the manufacture of soap and margarine. It is also used in the tinplate industry.

Nigeria exports enormous quantities of palm oil

(100,000 tons) and palm kernels (200,000 tons) each year; *Sierra Leone* also has a large export of palm kernels. Notice the railways and ports from the map.

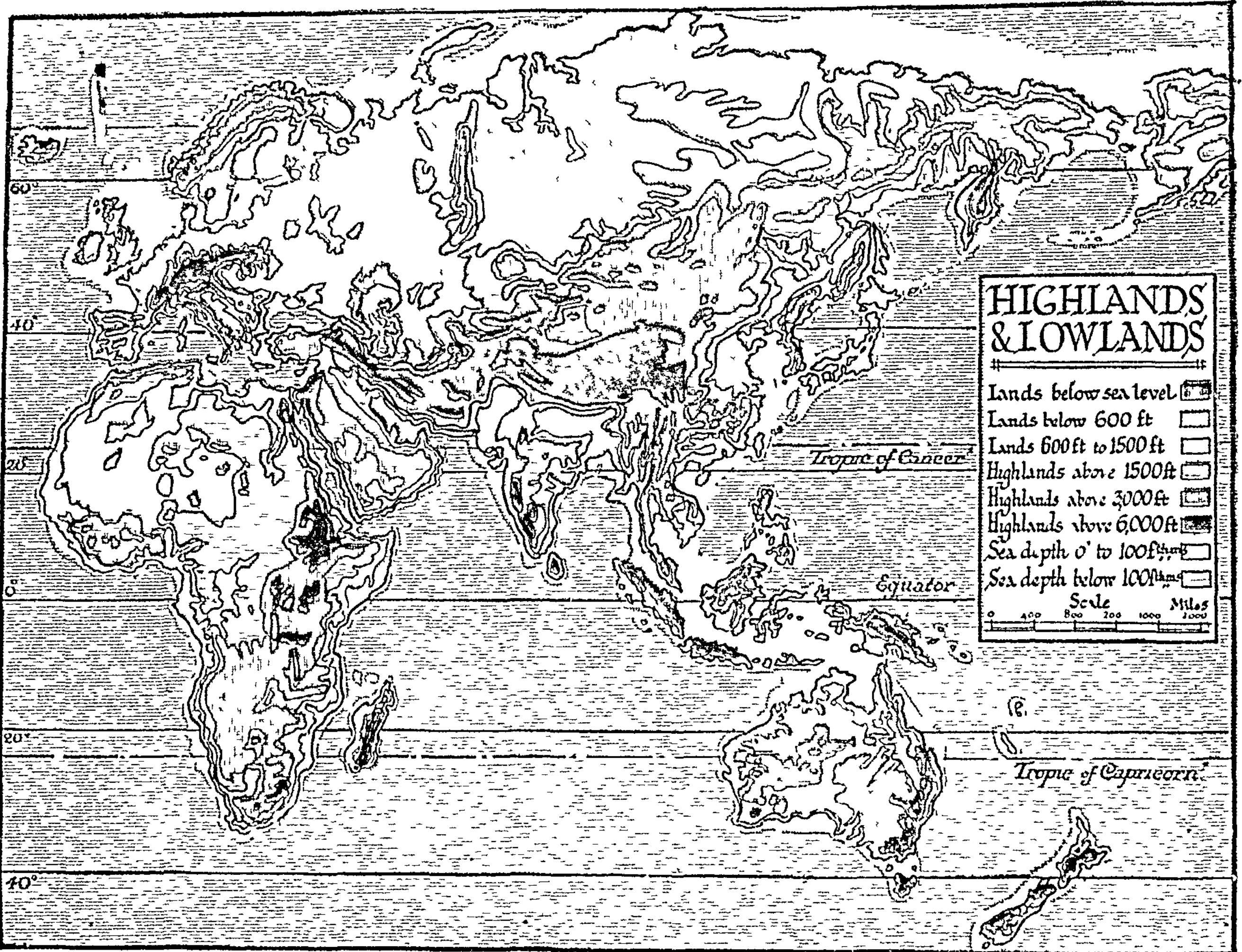
The Cocoa Industry of the Gold Coast.—Just as the palm oil industry is the most important one for



Drying cocoa beans in West Africa.

export in Nigeria, so the cocoa industry is the most important one to the Gold Coast. The first thing to remember is that there are no plantations run by white men; the work is in the hands of the natives.

In our studies of South America we saw how cocoa is obtained from the seeds inside the cocoa pod, which is the fruit of the cacao tree.



Note carefully the positions of the chief lowlands of the Old World.

The Gold Coast supplies most of the world's cocoa, and the work of the people in the ports especially has mainly to do with the export of cocoa. Most of the British chocolate that you eat and the cocoa that you drink come from the Gold Coast of West Africa.

1. On a blank map of Africa colour the Tropical Grasslands yellow, and the Tropical Forest dark blue. Put in the rivers Niger, Nile, Congo, Zambesi.

2. Write a short account of a journey by motor-car from Algiers to Sekondi on the Guinea Coast, showing that you know a lot about the life in the various natural regions passed through. Draw a map of the Natural Vegetation to illustrate your answer. On it mark the route you used (rail, caravan, etc.), and the towns you passed through.

3. On a blank map of West Africa colour all the British lands red. Print the name across each. Mark the chief ports.

4. Write the life story of the piece of soap you used to-day. Start from a West African oil-palm tree growing in the hot-wet forest.

5. Write the life story of (a) a piece of chocolate, or (b) a cup of cocoa. Start from a cacao tree growing in West Africa.

* * * * * *

Collect pictures of the lands and lives of the peoples of the Sudan and of West Africa.

VI

EGYPT AND THE NILE

The names of Egypt and the River Nile have been familiar to us since the days of our early childhood, when we heard the stories of Joseph and his brothers, Moses and the Pharaohs.

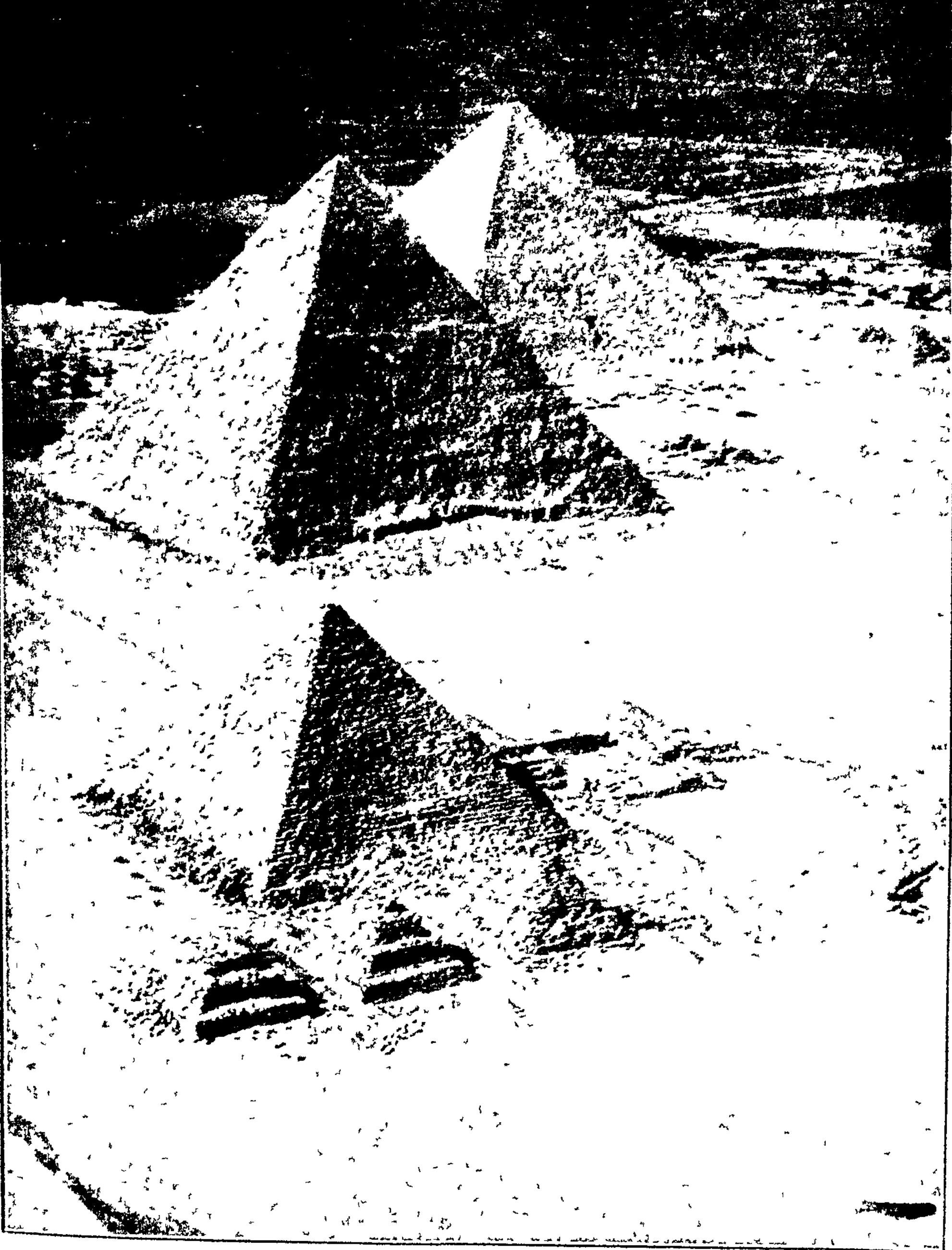
A wonderful civilisation grew up in Egypt thousands of years before Britain and Western Europe had the beginnings of civilisation. Wonderful buildings, temples, palaces and pyramids, beautiful work in stone, wood and gold, marvellous jewels, gorgeous clothes and wonderful feasts all belonged to Egypt in the past.

Yet Egypt is a part of the great desert that spreads from the Atlantic Ocean to the Red Sea. Rain seldom occurs there.

Where the people live.—But, if Egypt is a part of the great desert, why should so many people live there to-day—just as they have done for thousands of years? The population map shows that most of these people live along the banks of the river Nile—on the broad delta from Cairo to the sea, and on a narrow strip of the Nile valley between Cairo and Halfa.

Why is this? First, it is because the river Nile forms a long oasis in the desert. Secondly, this oasis is made larger and more fertile by the periodic floods that bring down water and fertile mud to the Nile valley.

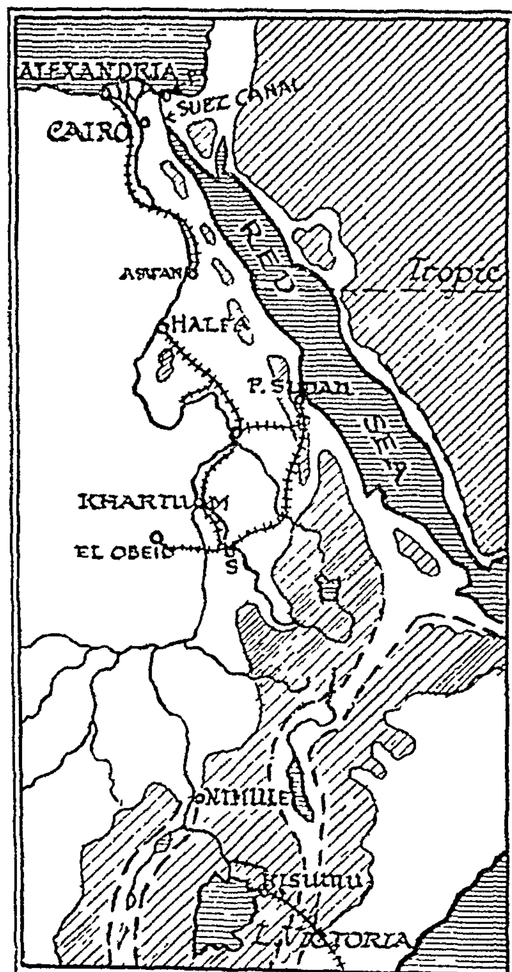
The Nile Floods.—From earliest times the important fact about the Nile to the people of Egypt was that it *flooded regularly*, each year. In this way the



AN AIR VIEW OF THE PYRAMIDS.

Note the sandy desert and the agricultural land on the edge of the de-

flooded area on each side of the river not only received plenty of water, but also received a layer of fertile mud that was left behind when the water subsided. Hence the flooding of the Nile acted as a natural irrigation to those parts of Egypt that were near enough to the river to receive its life-giving waters.



EGYPT & THE NILE

Egypt is most decidedly "the gift of the Nile," and the chief *gift* has always been the yearly flood.

How can these floods be accounted for? Look at an atlas and notice the two main sources of the waters of the Nile. They are known as the White Nile and the Blue Nile. The *White Nile* rises in the Lake Plateau of East Africa, near the Equator; consequently the heavy Equatorial rains give the Nile a *regular* supply of water. But this would not cause a mighty flood.

The yearly flood is caused by the waters of the *Blue Nile* and the neighbouring tributaries, which rise in the Abyssinian Highlands farther north. This region receives most of its rain in summer only. Hence, during the summer months, the Blue Nile gives such an enormous extra supply of water to the main river that it rises many feet above its usual level, and overflows its banks to the great benefit of Egypt.

The floods of the Nile valley have always been eagerly waited for, and great preparations were made to obtain the greatest benefits from the waters. The actual flood plain extends from *Berber* to *Cairo*, and seldom spreads for more than eight miles on each side of the river.

Irrigation.—The Nile valley in Egypt must be looked on as a long narrow oasis, where life of any kind is only possible so long as there is a sufficient water supply. As water is so valuable there, millions of pounds have been spent by the British in building huge works that store up the water in the flood season, and use it as required in the other seasons. The wonderful dam built at *Aswan* is one of these works. The stored water forms a lake 100 miles long. The lands below Aswan are irrigated from this lake by means of canals.

Other dams have been built at *Assiout*, and at *the delta*, so that hardly any of the flood water is wasted by running out to sea. By means of such irrigation schemes the value of the land along the banks of the Nile has increased enormously, the chances of famine have been made smaller, and excellent crops are obtained throughout the year.

The Delta is the most important part of Egypt. The

map shows its triangular shape, the many mouths and the towns built on it. Such a delta, like that of the Mississippi, has been formed by the mud brought down by the river, and deposited where the river meets the waters of the sea. As the Mediterranean Sea is tideless, the Nile delta is pushing farther and farther into the sea.

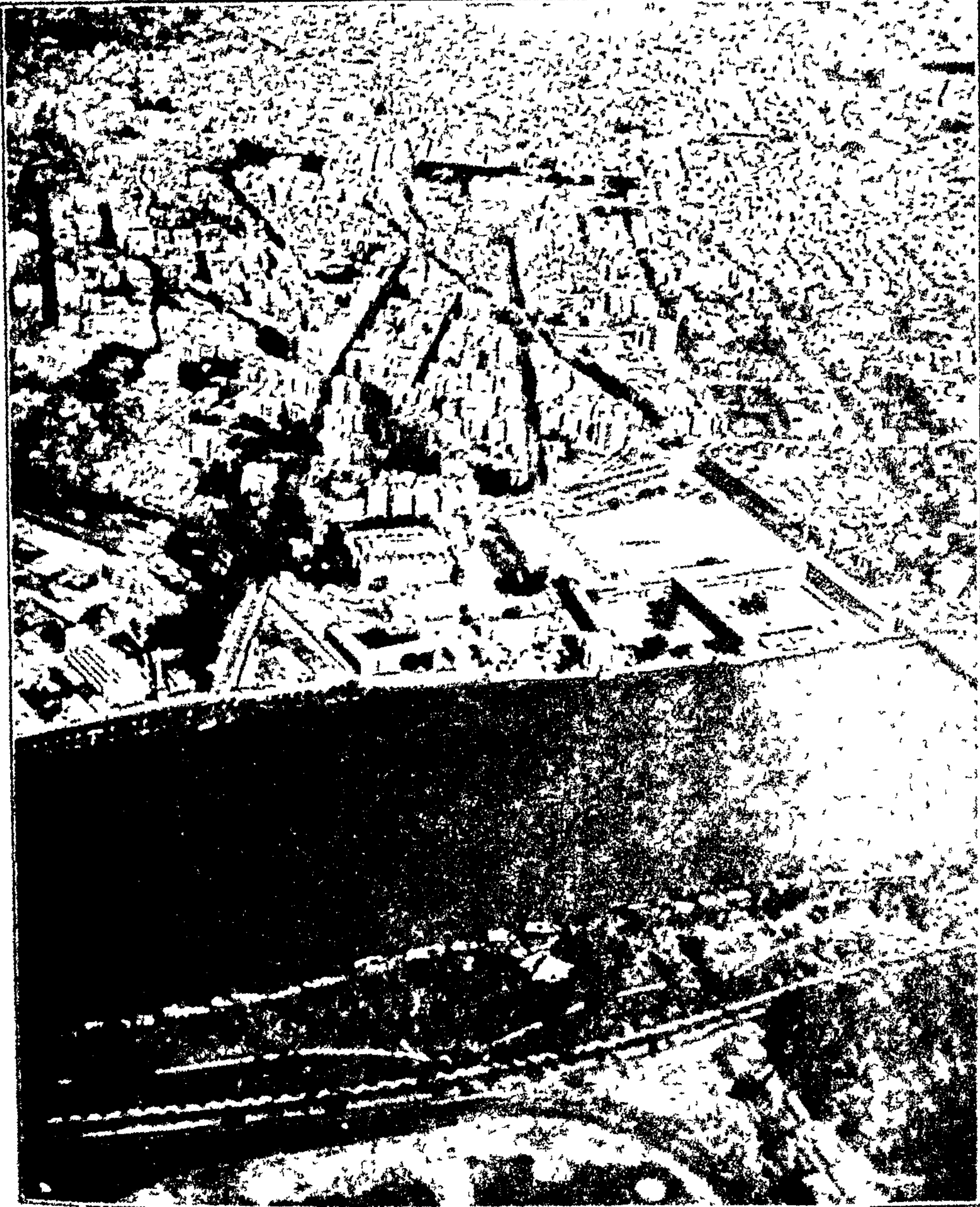
The delta occupies thousands of square miles, and is one of the most fertile regions in Africa. Three crops a year can be obtained from it. Wheat and similar crops can be grown in winter, while cotton, millet, maize, tobacco, and some sugar-cane and rice are also grown with excellent results in the summer months.

To-day, *cotton* is easily the most valuable crop, and is the largest and most important export from Egypt.

Cairo, at the head of the delta, is the largest town, and is the capital of Egypt. It is situated at a very convenient spot for governing Lower Egypt to the north, and Upper Egypt to the south. Cairo is the centre for tourists, thousands of whom come every year to see the ruins of the old Egyptian civilisations, such as the famous Pyramids, the Sphinx, and the tombs of the Pharaohs.

From Cairo the river divides into two main branches which enclose the fertile delta. *Rosetta* is the port on the western mouth, and *Damietta* on the eastern mouth. The other mouths of the Nile are used for irrigation purposes.

Alexandria.—But the chief port of Egypt is Alexandria—to the west of the Nile mouth. Much money has to be spent to keep the port clear of mud. Most of the exports and imports of Egypt pass through this



AN AIR VIEW OF CAIRO AND THE RIVER NILE.

Notice the flat roofs of the buildings, the palms on the water front, the bridge and the roads.

important port, which is connected to Cairo and Upper Egypt by railway. Most of the imports are manufactured articles—many of them from our own lands.

Notice *Port Said* on the east of the delta. It is the important port at the northern entrance to the Suez Canal, through which ships from Europe pass on the short route to East Africa, India, China, Japan and Australasia. (Study the large aerial view on pp. 70 and 71.)

Anglo-Egyptian Sudan.—For many years Egypt was under British rule. The good government, the spending of millions of pounds on public works, and the blessings of peace have greatly benefited Egypt and its peoples. To-day the Egyptians govern themselves.

Your atlas shows that much of the upper and less valuable courses of the Nile and its tributaries are still under British rule. This region is known as the Anglo-Egyptian Sudan. It is part of the Sudan region already mentioned in a previous chapter—the region that spreads right across Africa from the Atlantic Ocean to the Red Sea.

The lower lands of the Sudan of the Nile region are either desert, tropical grasslands, or a swampy region known as the "sudd" in the south-west.

The British have brought peace and increasing prosperity to this region by good government, by the building of railways and better roads, but particularly by the building of irrigation works in the dryer regions. The most valuable irrigation scheme was the building of the *Sennar dam* in 1925, across the Blue Nile. This enormous dam, $1\frac{3}{4}$ miles long, stores up the Nile waters, so that thousands of acres of land can now be irrigated.

AN AIR VIEW OF A FLOOD AREA OF THE RIVER NILE—AT EL AIYAT.

The River Nile runs through a desert, but you have learnt in this book that "Egypt is the gift of the Nile." The picture will help you to understand more fully a little of what this phrase means to the people who live on the banks of the Nile at certain spots.

Notice the flat region of the Nile bank in the background of the picture. It looks as if the whole of this region would be covered by water during flood time, if the bank were low enough; otherwise it will be a desert. What does it look like?

The foreground of the picture shows clearly how the waters of the Nile are made to irrigate the land on this bank. Notice the water channels, and how they are banked up.

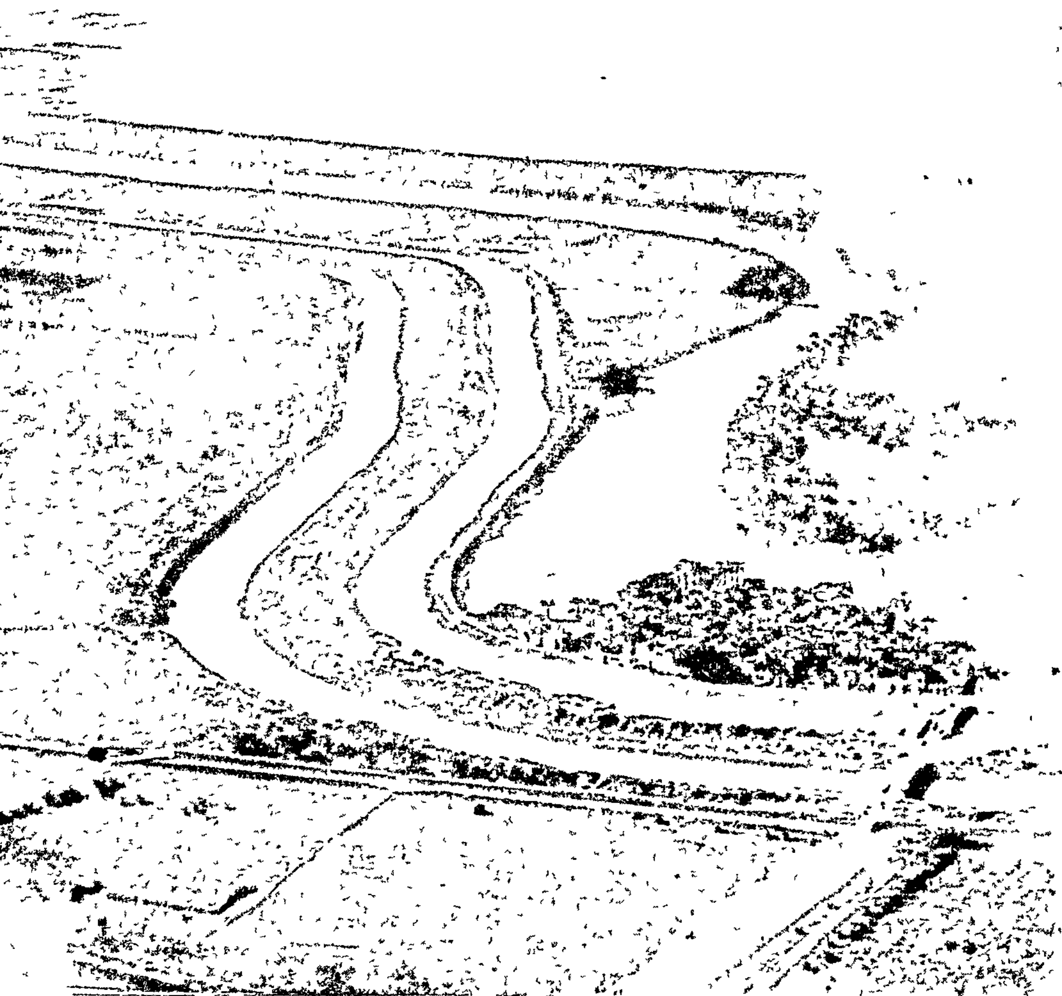
Can you see where the people live?

Notice also the palm trees which tell us something of the climate.

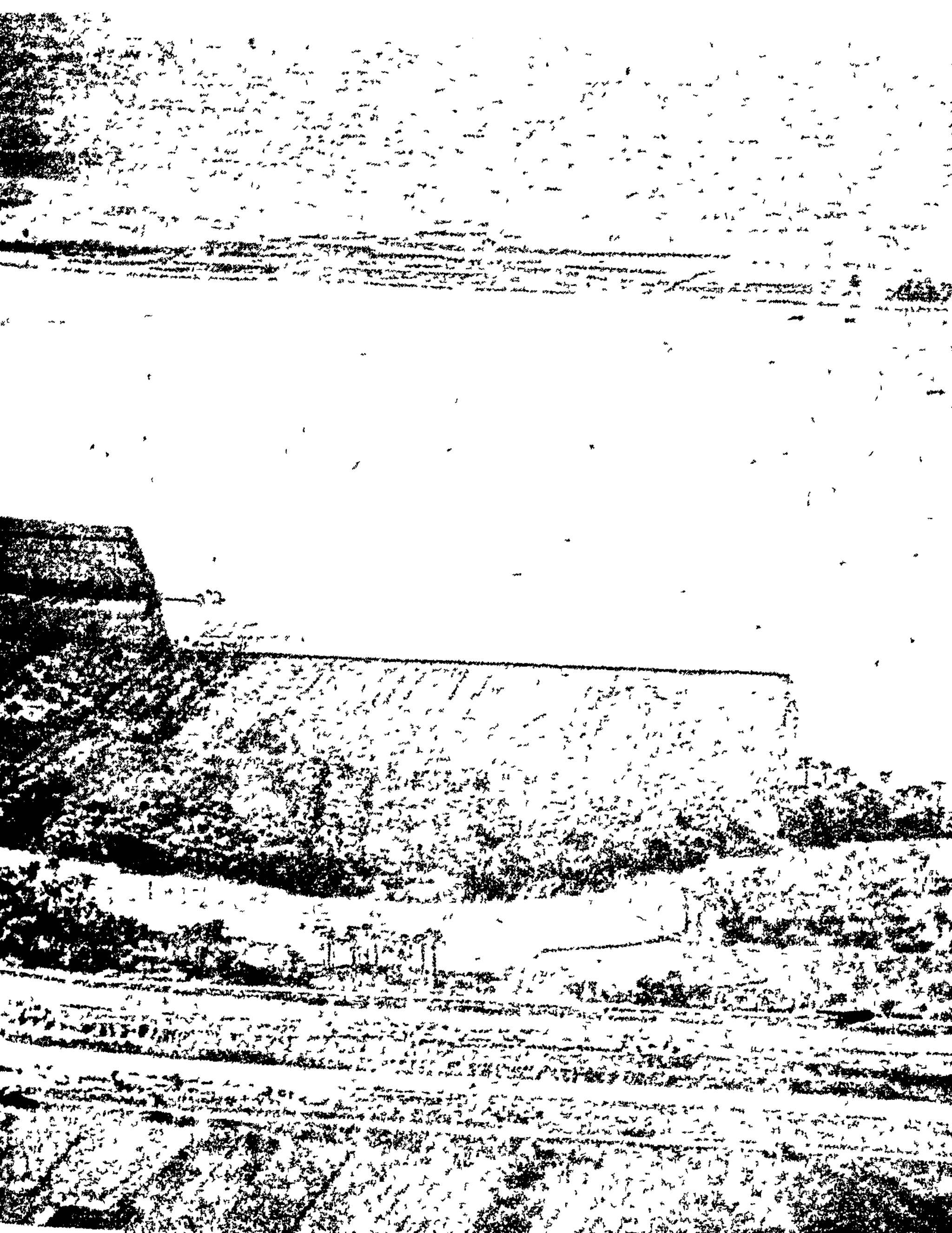
The fields have the appearance of being carefully cultivated. What are the main crops of Egypt?

Find the exact position of El Aiyat on the River Nile, and work out how many miles it is from Cairo.

Now read again the chapter called *Egypt and the Nile*.

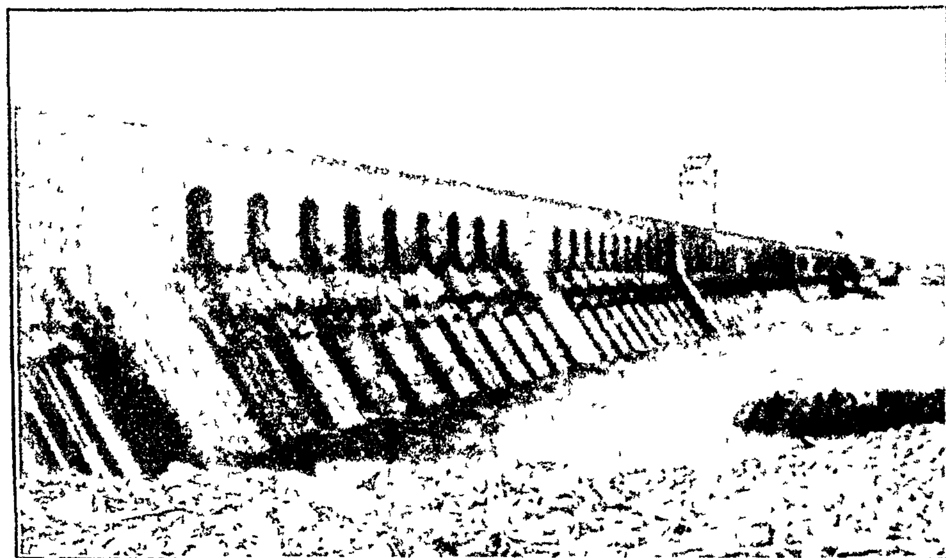


glomeration of the elements it s o d exist in a ea dy
so. If it be argued that consciousness is not perceived in a
dead body owing to the non-existence of Air, this argument



The result is that this region is being changed from a desert into a fertile area. More and more *cotton* is being grown there.

Gum arabic is a very important product of all parts of the Sudan, which produces more of this material than any other region in the world. The gum is obtained by stripping the bark from the wild gum trees, immediately



THE SENNAR DAM.

after the rains. The gum oozes from the wound, and, when fairly hard, is collected by the natives. The gum trees grow here and there over an enormous area, parts of which are so waterless that the collectors can obtain no water except from wild water melons. The gum is taken to the nearest market by camels. It is sold by auction, and is exported from the Sudan, from Port Sudan—the only port.

Port Sudan is the most important port on the Red Sea. It is joined to the river Nile by a railway, which now helps to export much of the produce from the Upper and Middle Nile. If it were not for this railway and the valuable port at its terminus, export trade would have to go down the Nile to the Mediterranean—a journey of thousands of miles.

But note that the shortest distance from Port Sudan to the river Nile (to Atbara) is about 300 miles; and that from Atbara to the Sennar dam is even a greater distance.

1. Trace a map of the River Nile and its tributaries. Colour the highlands in the neighbourhood in yellow.

2. By the side of the map of the River Nile print the names of the natural regions opposite each of the regions through which the Nile runs (Desert, Tropical Grasslands, Tropical Forest).

3. Trace another map of the River Nile. Draw the railways in red ink. Mark the important towns.

4. "Egypt is a long oasis in the desert." Explain what this means.

5. Why does the River Nile flood regularly every year?

6. Say what you know of irrigation in the valley of the Nile. What are the chief crops? Say where each is produced.

7. On a map of the world draw the main sea-routes from Britain to East Africa, India and Australasia to show the importance of the Suez Canal.

VII

THE CONGO BASIN. EQUATORIAL FORESTS

Let us imagine that a traveller in the savannah country of East Africa is journeying towards the tropical forest of Central Africa. He describes what he sees from a hill top :—" Only five miles away rose the green walls and ramparts of the great forest. Eight hundred miles and more of it stretched away to the westward like a dark green high-land, with capes and promontories extended here and there into the smooth sea of the open grass country. To north and south, as well as westward it held possession of the eye."

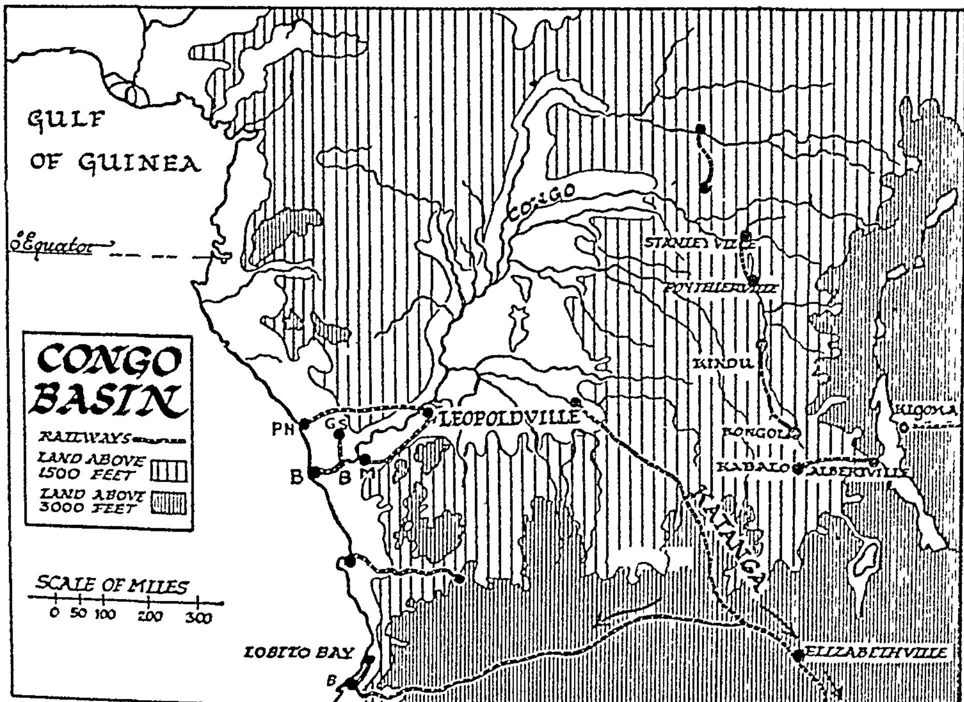
The Hot-Wet Forest of the Congo.—On either side of the Equator, and stretching from the Atlantic Ocean to three-quarters across the continent, lies this vast tropical forest described above. The heat there is always intense, and heavy rains fall at all seasons of the year. It covers an area of about 325,000 square miles or seven times the size of England.

The river Congo with its many tributaries runs through this vast forest. As in the Amazonian forest of Brazil, the easiest routes through the forest are the many water-ways overhung by the forest growth of all kinds of trees matted together by innumerable creepers.

Land routes are few. They have been hacked out of the forest, which is so dense that even at midday only a stray ray of sunlight occasionally penetrates the thick roof of the forest that covers them.

Settlements.—Occasionally, in a clearing in the forest,

will be found a small native village consisting of rude huts surrounded by *plantations* in which the negro natives grow their requirements. Hunting and fishing are the chief occupations of the men, while the women do all the work in the fields.



Notice particularly the railways, and think why they have been built where they are.

The Nomads of the Forest.—Right in the heart of the forest lives a very different type of native—the *Pygmy*. The Pygmies live a very mean life on the products to be found in the forest. They are *food-gatherers*—mainly by means of hunting, although the women and children collect wild fruits, vegetables and berries from the forest. As

they are food-gatherers they are nomads, cultivating nothing and having no permanent homes. Their weapons are spears, bows and arrows, the latter sometimes poisoned.

The Congo Region To-day.—The forest still stretches for endless miles in all directions, but the white man, with the work of the natives, has made some changes. The most important changes are to do with travel, and with the obtaining of vegetable and mineral products. The Congo is still the great route through the forest. But railways have been built in some parts, so that long journeys can now be made by combined river and rail routes, with none of the weary travel on foot through the actual forest.

The map shows which parts of the river have been linked up by railway. Note the railway between Matadi and Leopoldville. It is 250 miles long. This was built because the river between could not be navigated owing to the rapids and waterfalls. For the same reason a railway now joins Stanleyville to Ponthierville, thus avoiding the Stanley Falls.

Note how other railways link up the Congo Basin with the west coast and the east coast.

One of the most important regions in the Congo Basin to-day is the Katanga district, which you can see is linked up by a railway to the west coast. This district has enormous deposits of *copper* ore which is smelted locally. More *radium*—the most valuable mineral—is found there than in any other region in the world.

Many oil palms are found in the forest, and more and more palm oil and palm kernels are being exported.

Elephant ivory and a little wild rubber are also exported.

VIII

EAST AFRICA AND THE GREAT LAKE PLATEAU

The lands on the east of Africa are usually very different from those on the west, in the same latitude.

The vegetation map shows that, while an enormous belt of tropical forest occupies the basin of the Congo, the forest is not continued to the east coast; the same map shows also that the lands of east Africa except on the coast, are mainly Savannah or Tropical Grasslands. Why is this ? It is due partly to the height.

The East African Plateau.—The physical map shows that this region is mainly a mountainous one with many enormous lakes. It might be called the Lake District of Africa.

Actually this area is the highest in Africa, having such tall giants as Mt. Ruwenzori, Mt. Kenya, and Mt. Kilimanjaro the highest mountain in Africa. These mountains are so high that, although they are practically on the Equator, yet the tops are covered with snow all the year round.

Look at the lakes very closely. Notice which rivers lead from them and where these rivers empty themselves. Notice particularly the sources of the rivers Nile, Congo, and Zambesi—three of the longest rivers in Africa, but emptying themselves in opposite directions.

The African Rift Valley.—Many of the lakes are long narrow ones. They have been formed at the bottom of the famous Rift Valley of Africa. We have already learnt what a rift valley is, when we studied the

important rift valley of Scotland. But the Rift Valley of Africa is ever so many times larger than the Scottish one. It stretches from the Jordan Valley in Palestine, through the Red Sea, and so to the heart of the Lake Plateau in a north-south direction, until it encloses Lake Nyasa. From Lake Nyasa the rift valley takes a

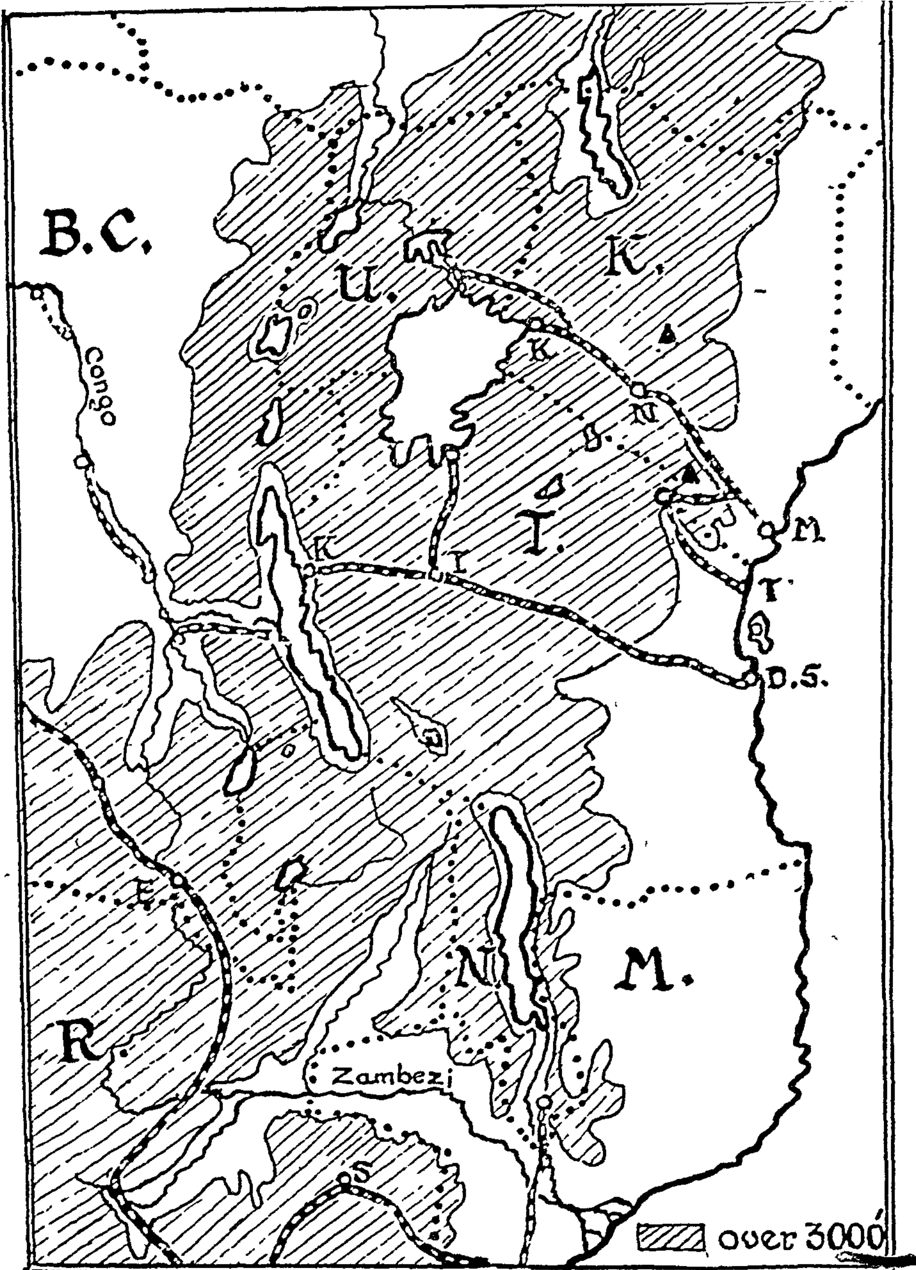


A Uganda village near Lake Albert.

sharp turn and is continued to the north—to the west of Lake Victoria. (See map on p. 38 and p. 53.) Notice again the line of lakes that lie in this wonderful "rift" or trench in the earth's surface, and especially Lakes Nyasa, Tanganyika, Kivu, Edward and Albert.

These vast lakes act as reservoirs for the mighty rivers that flow through and drain a large part of Africa.

British East Africa.—The political map shows that



EAST AFRICA AND THE LAKE PLATEAU.

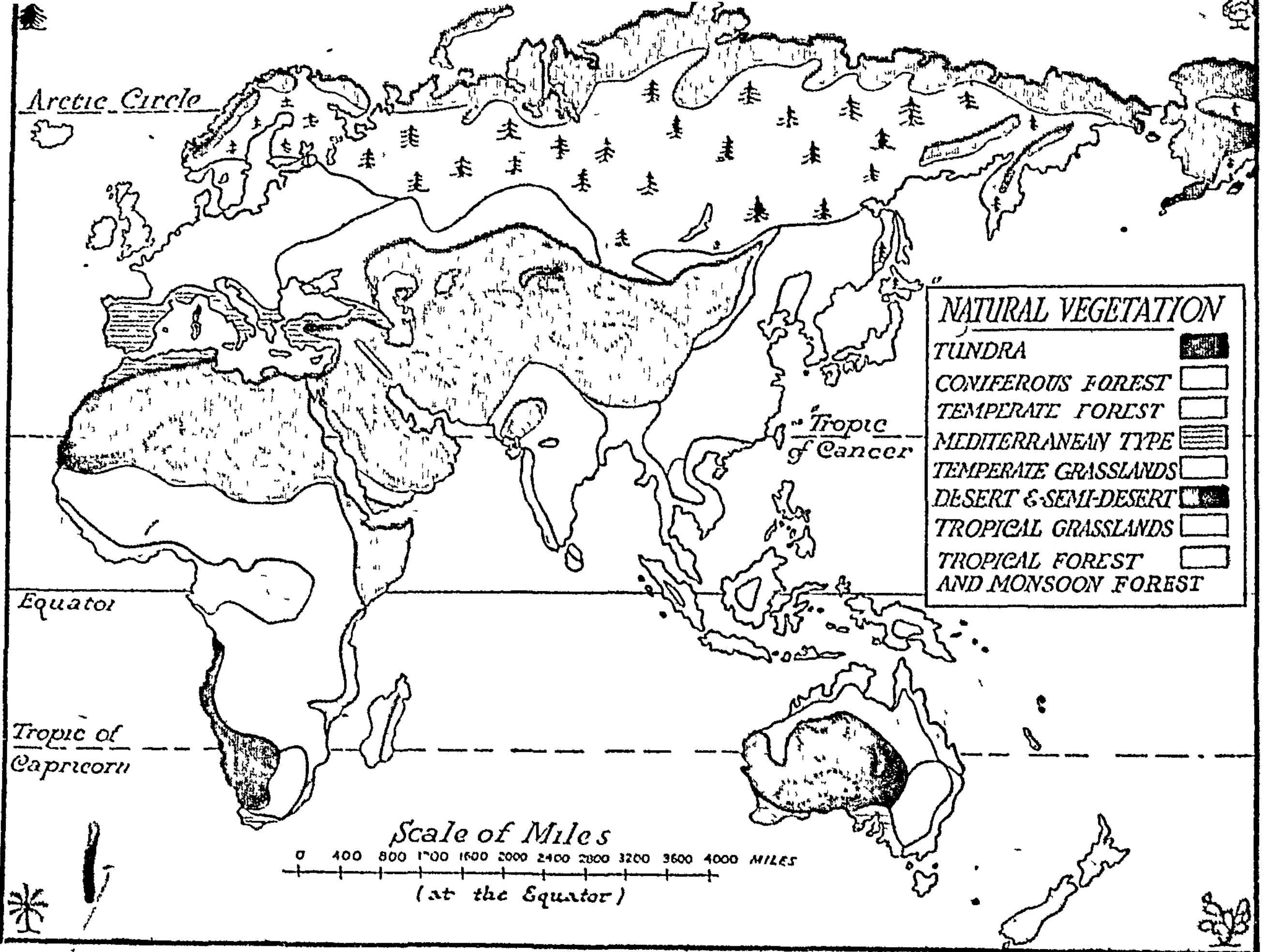
Note —(1) The names of each of the lakes. (2) The names and positions of each of the states marked with a large capital letter. (3) The railways from the coast to the lakes.

the greater portion of these plateau lands is a part of the British Empire. The chief states of British East Africa are Kenya Colony, Tanganyika Territory, Uganda Protectorate, parts of the Sudan to the north, and Nyasaland to the South.

To reach the Lake Plateau from Britain, one would book a passage on one of the regular steamers that start for E. Africa from Tilbury docks. The passage would be booked to either *Mombasa*, the chief port of Kenya, or to *Dar-es-Salaam*, the chief port of Tanganyika. The ship would go by way of Gibraltar, the Mediterranean Sea, the Suez Canal, Red Sea and Aden. and so into the Indian Ocean.

A Journey from the Coast to the Rift Valley.—The map shows that two railways have been built from the coast into the heart of the Lake Plateau. 1. Across Tanganyika territory, from Dar-es-Salaam to Kigoma on Lake Tanganyika and to Mwanza on Lake Victoria. 2. The other starts from Mombasa the port of Kenya and goes right across Kenya, to Lake Victoria—a distance of 587 miles. The railway passes from the hot, unhealthy coastlands to the higher and cooler plateau lands of Kenya, where white men can live and work. Coffee, tobacco and maize are the important crops. This region of Kenya is also one of the most interesting for the traveller. as parts of it still abound with wild animals of all kinds —lions, zebras, antelopes, elephants, hippopotami and rhinoceri. It is one of the "Big Game" lands of the world, and many hunting expeditions—with gun and camera—start from Nairobi the capital of Kenya.

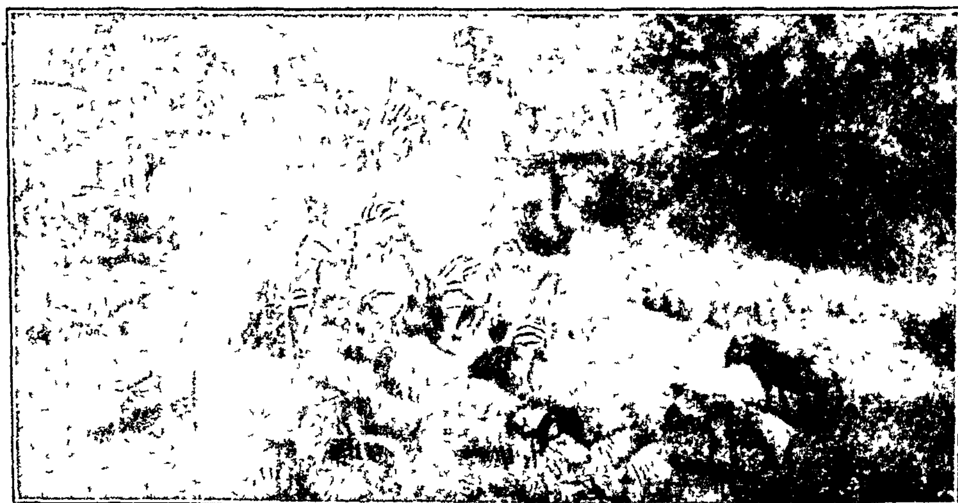
Nairobi is more than 300 miles from the coast, and a



Note that most of the Temperate Forests of Eurasia have been cut down.

mile above sea level. Because of this high position, although it is so near the Equator "the climate is as a rule delightful, neither too hot nor cold, and rain usually falls during each month," with a total for the year of 38 inches.

Nairobi is the meeting place of routes, and to-day one can travel from there, through the heart of the Big Game



Some wild animals of the Tropical Grasslands of E. Africa.

country, by motor-car on fairly good roads for many hundreds of miles. Parts of these roads can be used only in the dry seasons.

From Nairobi the country rises rapidly—1200 feet in less than 18 miles. From the train many native kraals can be seen, and the land appears to be cultivated in all directions. The most important native crops are sweet potatoes, maize, millet and beans. Cattle and goats are reared by the native population in their grassland "reserves."

AN AIR VIEW OF THE VICTORIA FALLS

Showing also the railway crossing the gorge.

The Victoria Falls are the broadest, highest and grandest waterfalls in the world. They occur on the River Zambesi at a spot where a huge split, often more than 400 feet wide, appears in the African Plateau.

The River Zambezi, at this point, thus flows over a huge precipice as " a glorious sheet of water a mile and a quarter wide toppling over dizzy cliffs into a turbulent chasm below, and then making a seething escape through a gorge on the other side of the chasm, into what is called the grand cañon."

The thunder of the falls can be heard for many miles, and the spray hurled into the air forms a thick mist almost like smoke. *Sounding Smoke* is the picturesque name given to the falls by the natives. The spray also acts as an additional rainfall to the district, and the result is seen in a luxuriant, green forest growth.

The precipice over which the Zambezi rushes is one side of a great split of unknown depth in the earth's surface. Into this deep gorge or cañon with precipitous sides the Zambezi leaps. The water tumbles and rushes through the gorge with great force, forming terrific whirlpools and eddies in which the waters seethe and boil. The outlet leads into other gorges which zig-zag for 40 miles across the plateau below the falls. The river rushes, boils and eddies through these cañons as if frantically seeking a way out.

The photograph shows clearly these deep gorges, and their zig-zagging path across the plateau.

These gorges are a great barrier to movement. But, in 1905, the *Cape to Cairo Railway* crossed them by means of the highest bridge in the world. Its position is shown in the photograph. The building of this bridge was a wonderful piece of engineering, and was done by a British firm.


VICTORIA FALLS

Still farther west the railway reaches its highest point so far, and then begins to descend. It has reached the famous Rift Valley, which lies about 1500 feet below, and is from 20 to 40 miles wide. The slopes are forested in many parts. The many extinct volcanoes



Picking cotton in Eastern Transvaal.

of the plain give some idea of the earth forces that have troubled and shaped this region in the past.

The train descends the forested slopes and begins to cross the floor of the valley, which, with its open, rolling type of country and its sloping pastures, provides good pasture for cattle and sheep.

The journey up the western slopes soon commences passing through thick forests.

After reaching about 8000 feet above sea-level the rail route slopes gradually down to the west towards Lake

Victoria, nearly 100 miles farther on, where our present journey ends at *Kisumu*, the main port of the lake.)

Kisumu is an air station for mails from Britain to East Africa, and for air travel on the Cape to Cairo route.

Productions.—These vary according to the amount of rainfall and the height of the land. The coasts and the Lake Shores give tropical produce such as coconut palms, rice, and sugar; the plateaux are native cattle lands, but maize and millet are grown for food. Only on the land above 5000 feet is white settlement possible; the climate is delightful, plantations of coffee (Kenya), cotton (Uganda), tobacco (Nyasaland), sisal (Tanganyika). and maize, are the most important crops of the white settlers.

1. Trace a map of East Africa covering the same area as that on page 53. Draw only the coast, the lakes and the rivers. Mark the Rift Valley.

2. On the map above mark in red ink all the railways, and the ports and towns joined by them.

3. Make a list of all the wild animals to be found on the grasslands of the East African Plateau.

4. Make a list of all the states of East Africa. By the side of each state write the name of the most important town, and the name of a port (if the state has one).

5. Make a list of the most important things produced by the peoples of East Africa. Opposite each product say whether it is produced by white men or by natives.

* * * * * *

Copies of pamphlets on East Africa will be sent on application from Heads of Schools.

IX

SOUTH AFRICA: CLIMATE AND REGIONS

So far we have had slight peeps at the more important regions of Africa, except one. This we are now going to study. It is roughly the enormous region south of the tropical forest. As it is the southern half of Africa, it will be known as South Africa in this chapter.

The vegetation map of the above part of Africa shows the natural regions, which can be tabulated roughly from north to south as follows:—

1. The Tropical Grasslands in the north.
2. The Kalahari Desert and Scrub lands in the west and centre.
3. The Temperate Grasslands, known as the Veld, west of the south-east highlands.
4. The Mediterranean type of vegetation of Cape Colony—in the south-west.
5. The Natal region—in the south-east—hotter and wetter than the Cape Colony region, having rain at all seasons and therefore a natural forest vegetation. Many palms grow on the coastal belt.

Physical Features.—The physical map of South Africa shows that it consists mainly of plateau. Nearly half of the total region south of latitude 10° south is more than 4000 feet above sea-level. (Note that Snowdon in Wales is 3560 feet above sea-level.)

The highest part of the edge of this plateau is in the south-east, forming a curve of much higher land—the

Drakensburg Mts)—not far from the coast. This higher land drops steeply down to the Indian Ocean.

As a result of this plateau formation, the rivers of South Africa, like most of those in Africa, will have waterfalls along their courses, and consequently will not make good routes into the heart of the land.

Your atlas shows that the largest rivers are the *Zambesi* in the extreme north, and the *Limpopo* farther south—both flowing into the Indian Ocean. *The Orange River* is the only large river flowing towards the Atlantic Ocean, but it is of little use for navigation, having many rapids, being almost dried up at certain seasons, and in flood during the rainy season.

Climate.—Study carefully the temperature maps on page 102, and notice the position of the coolest regions in summer and winter. *The rainfall* of most of South Africa is seasonal, and falls chiefly in the summer months, namely December, January and February.

The summer rains of South Africa are caused by the *South-east Trade winds* that blow towards the east coast. They drop most of their moisture on the eastern margins. The high wall of the plateau, so near the coast, prevents much moisture passing far inland. Consequently the farther one travels into the country from the south-east, less and less rain falls. Many of the smaller streams disappear during the dry season. This lack of rainfall in the interior and on the west coast accounts for the vast areas of scrub land and desert [the Kalahari] that exist in the western half of South Africa.

The great exception to this summer rain is the S.W. region of the Cape Province, where the rain falls mainly

in winter, as this region then lies in the path of the westerly winds. As a result of this winter rain, and the winter and summer temperature, the south-west tip of the Cape Province has a climate very similar to that of the lands bordering the Mediterranean Sea.

Summing up the climate in South Africa, we could say :—

1. That the temperatures of the extreme south-west, and on the higher parts of the plateau are not too hot for white people to live fairly comfortably.

2. That the rainfall decreases from the east coast to the west coast.

3. That the western regions of South Africa suffer from lack of rainfall, and are consequently scrub land or desert in many parts.

4. That the extreme tip of South Africa has its rain mainly in the winter three months, and consequently has the Mediterranean type of climate.

South Africa is a land of sunshine, having nearly twice as many hours of sunshine a year as London.

1. On a blank map of South Africa mark all the rivers, and colour yellow all the land over 1200 feet.

2. Make a coloured map of South Africa, showing the annual rainfall. Put in the chief winds that bring rain to the various regions.

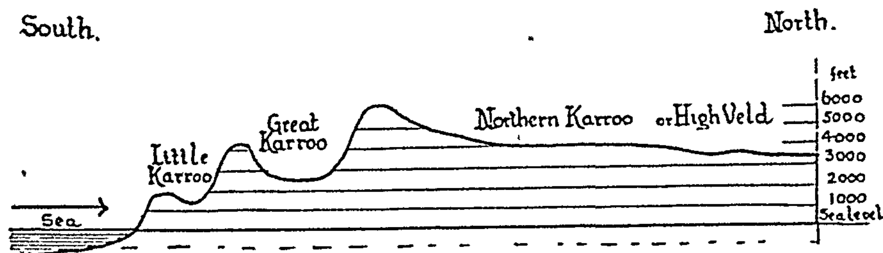
3. Make a coloured map of South Africa showing the regions of natural vegetation.

X

THE UNION OF SOUTH AFRICA: FARMERS AND MINERS

The Union of South Africa consists of the provinces of The Cape of Good Hope, Natal, the Orange Free State, and the Transvaal. These states have a single parliament, and form one of the self-governing countries of the British Empire.

The peculiar formation of the plateau of South Africa not only makes travel difficult, but also does much to



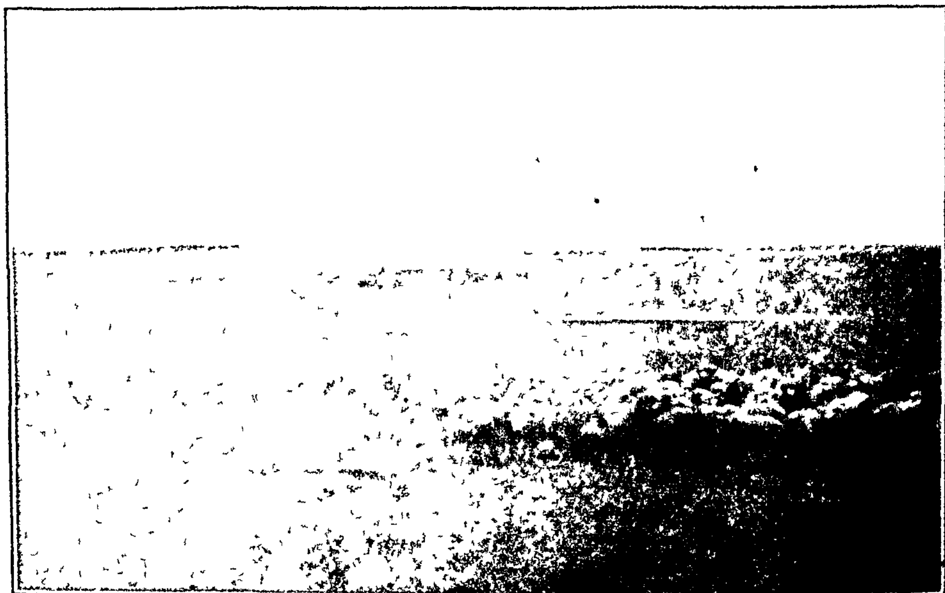
A Section of South Africa from the south coast due north, showing the relief of the land.

prevent moisture from rain-bearing winds reaching far inland. These rain-bearing winds are the south-easterly winds that bring rain in summer to the south and south-east, and the westerly winds that bring rain to the Cape Province in winter.

The diagram is a rough section of South Africa from the centre of the south coast to the Orange River. It helps to make clear the above facts. Notice how quickly the land rises from the coast to the main plateau. in

three irregular steps. The plateau formed by each of these steps is called *the Karroo* in South Africa.

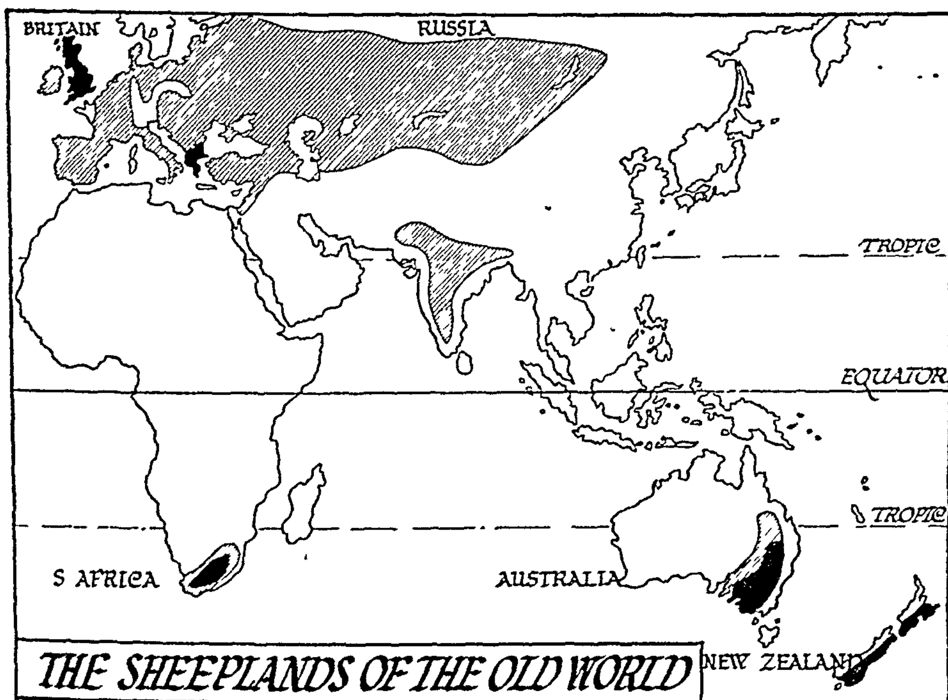
Sheeplands.—The Karroo consists mainly of grassland or scrub, which changes almost to hot desert in the driest regions. The scenery is one of rolling country of bush, grassland and scrub, with here and there small hills known as *kopjes*.



A SCENE ON THE KARROO. The Sheeplands of South Africa.

(In winter the weather is delightfully mild, with plenty of sun, but the nights are cold, and become colder the farther inland one travels. The summers are very hot,) and on the hotter plains short trees called shrub (or *bush*) grow in patches. During the hot summer days the Karroo bush is shrivelled and blackened, and the water courses are dried up by the scorching sun. Not a green spot anywhere. The Karroo looks like a blackened

desert. But, even then, there is enough food in the dried plants for millions of sheep and goats. How different are these lands after the spring rains? The dried-up region has changed entirely; it is then one mass of verdant pasture, in which innumerable flowers grow, and on which sheep and cattle graze, as if in a paradise.



Note the position of the Sheeplands of the Southern Hemisphere.

These prairie lands of South Africa are one of the great wool-growing regions of the world. The first *step* of the Karroo plateau is the most important of these sheeplands. Next to gold, wool is the most valuable export of South Africa. South Africa is one of the six chief wool producers in the world.

Farming in South Africa.—It is interesting to note that while the four states forming the Union of South Africa are together about 5½ times larger than England, they have only about eight million people living there, most of whom are the native black people. The white people are outnumbered by four to one. Many of the whites are of Dutch descent and speak Dutch.

The most valuable products of South Africa are gold, diamonds and wool. But the majority of the people (both white and black) are farmers, who live on the land they cultivate.

Our study of the climate tells us which are the most likely regions for growing food crops. As you would expect, these regions lie in the eastern and southern parts of the country. Maize, called *mealies*, is the most important crop of the Union. It is the chief food of the natives, and most of it is produced by them.

The most important maize lands are in the Orange Free State and the Transvaal, which provide 90 per cent. of the total maize crop of South Africa. Much of this crop is used to fatten the millions of cattle that live on the large expanses of natural grazing land.

The Natal Coastlands between the sea and the plateau have a warm climate with ample rain, and the coastal region is very fertile. Sugar-cane is a very important crop and large quantities are exported; tea, tobacco, cotton, pine-apples, bananas and oranges are also grown. Durban has a good harbour and is the important port.

The Winter rain region of the Cape of Good Hope Province is a very important farming region. It is the most suitable region in the Union for growing wheat,

AN AIR VIEW OF THE SUEZ END OF THE SUEZ CANAL.

The atlas shows that Suez is the port at the southern end of the Suez Canal. This important canal joins the Mediterranean Sea to the Red Sea, by crossing the narrow Isthmus of Suez which joins Africa to Asia.

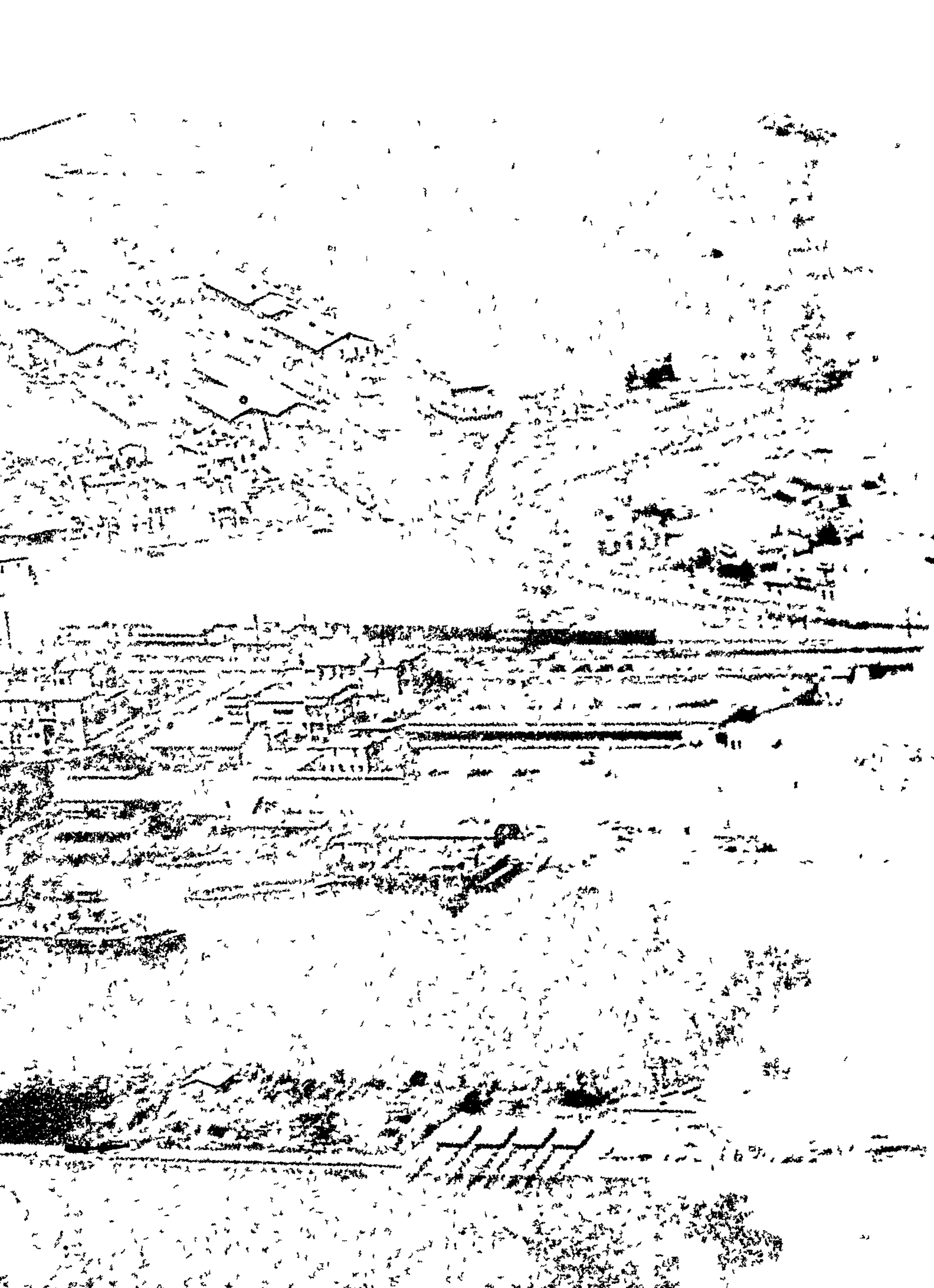
The Suez Canal was completed in 1869, after 10 years' work, employing many thousands of workmen. It is 101 miles long, and has a navigable breadth of about 50 yards, so that large ships can pass through it. At the northern end of the canal is Port Said—107 miles by rail from Suez.

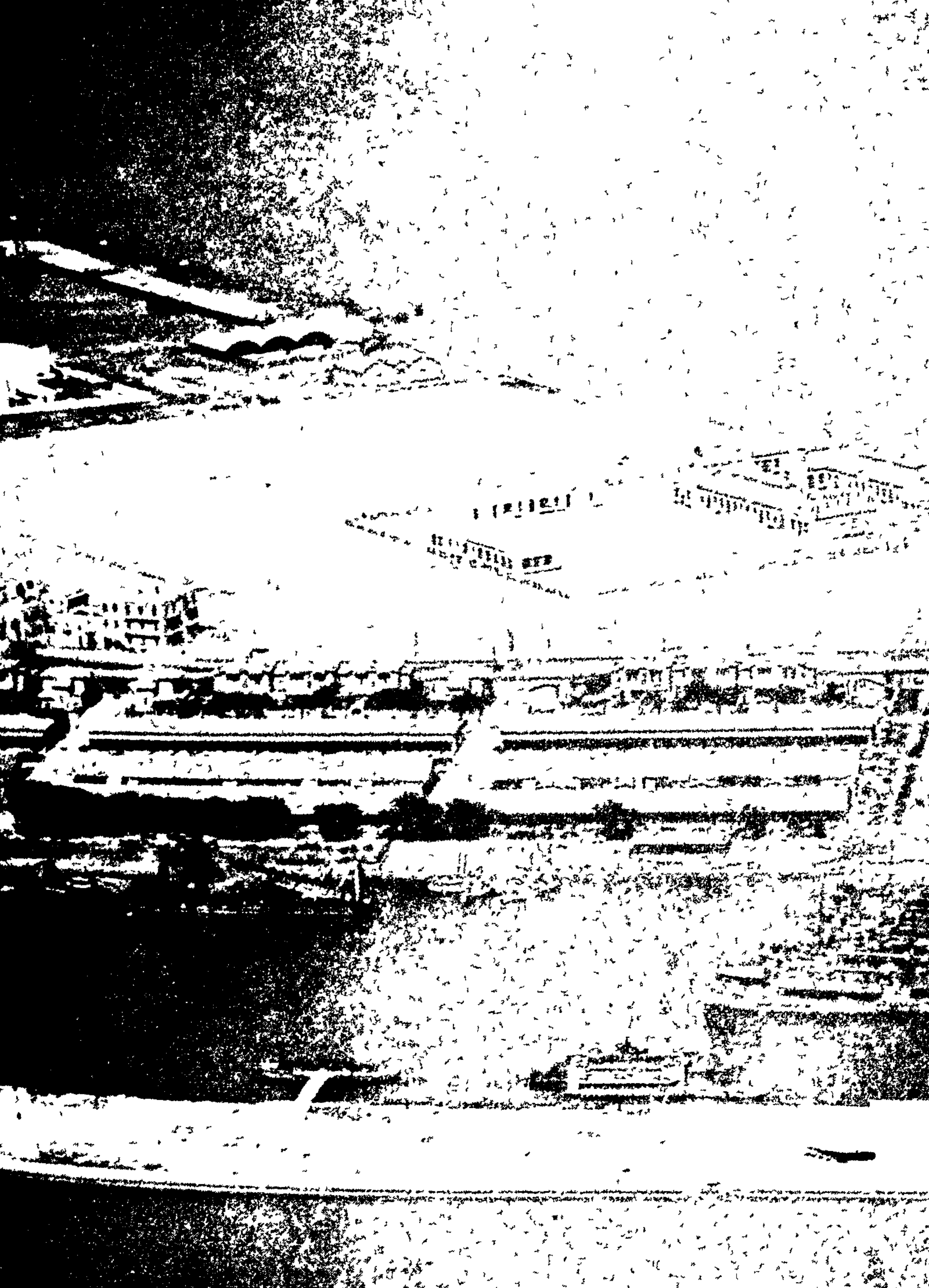
The Vegetation Map shows that the Isthmus of Suez is a part of the enormous desert region that spreads from the Sahara to Arabia. The Israelites, under Moses, crossed this region (the *Wilderness*) when they left Egypt for the *Promised Land*. Much of the country crossed by the Suez Canal "is an absolute desert. The great ship towers above the long stretches of sand, and passes silently through a land which nature has rendered silent through the ages. Sometimes a few Arabs or a string of camels are to be seen, but more often nothing but a vast expanse on which strange mirages of lakes, islands and oases mysteriously settle and disappear."

The Suez Canal is a very valuable route for European ships to East Africa, India, the East Indies and the Far East. By means of this canal the sea route from England to India is only 7,500 miles, as compared with 11,600 miles by way of the Cape of Good Hope. The majority of the ships passing through the Suez Canal are British ships.

Notice the breakwater in the picture, the harbour works of all kinds, and the docks.

Compare the value of the Suez Canal with that of the Panama Canal.





although not enough can be grown for the requirements of the population.

To-day, fruit-farming is becoming a more and more important agricultural industry to South Africa. When we remember that the fruit crop is harvested during our winter time, when fruit is scarce, we can see that the



FRUIT-FARMING IN NATAL. A Citrus Grove.

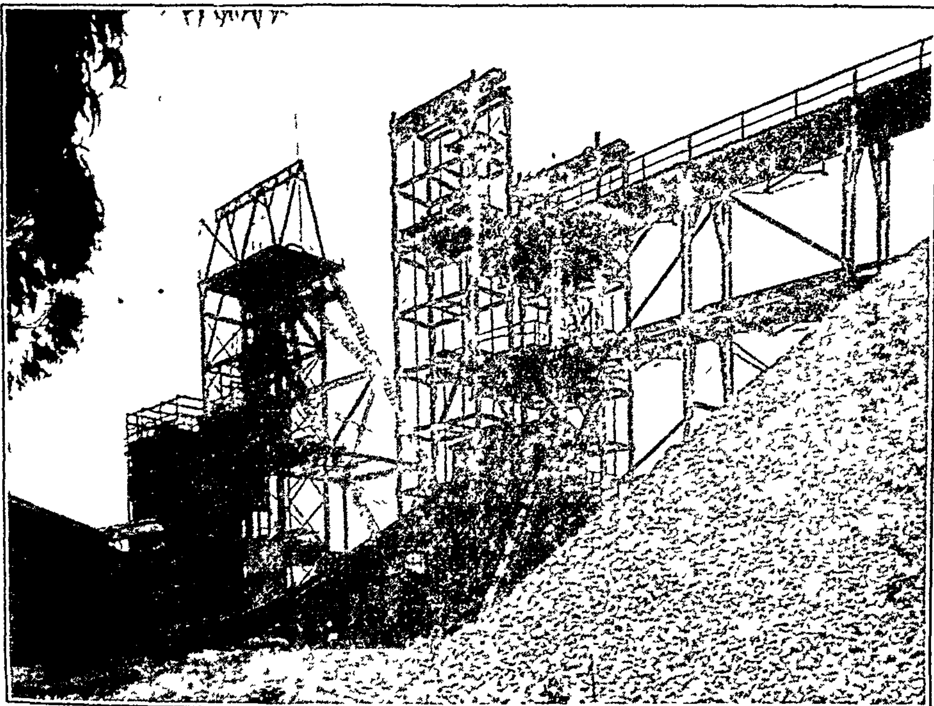
fruit from South Africa will find many eager markets in the northern hemisphere.

(Grapes, oranges, pears, plums, peaches, prunes and raisins give good crops, and the export trade is increasing rapidly, especially to our own country.

Dried fruits are also a product of the south-west corner of the Cape Province. This region is most suitable because it is the only part of South Africa that has a dry, hot summer. Hence the fruit can be dried in the open air—as in California. Raisins, prunes, apricots, peaches, pears, and plums are the more important of dried fruits

produced, although sultanas and currants are also grown.

The Gold Fields of the Transvaal.—Gold, wool, diamonds, maize, sheep skins, hides and skins and sugar



At the head of a Gold-mine on the Witwatersrand

are the most important exports from South Africa. Of these gold comes first, and nearly all of it comes from one small region of the Transvaal—60 miles long and about 3 miles wide—known as the Witwatersrand.

The Transvaal produces more than half the Gold Supply of the World.—Last year about 45 million pounds worth of gold were obtained. But do not think that this was all profit. To obtain the gold from the gold-bearing

rocks is a very expensive business to-day, as very valuable machinery has to be used, and while only about 28s. worth of gold is obtained from every ton of rock that is crushed, the cost of getting it is about 20s.

The heavy work of the mines is done by natives, who are allowed to live only in the special *compounds* provided by the mine owners. These compounds are really more like small towns having everything in them that the natives require, from shops and cinemas to hospitals.

The white people live apart from the natives, and their work is to do with the looking after the delicate machines and supervising the native workers.

Johannesburg, 6000 feet above sea-level is the great centre of this gold producing area. It is the largest town in Africa next to Cairo, yet forty years ago it did not exist, and its site was valueless. The discovery of gold has made Johannesburg the important city that it is to-day. Beautiful buildings, churches, theatres, cinemas, hotels, schools, hospitals, parks and swimming baths, fine roads and streets, electric trams and motor buses, and railways, roads and air routes converging on it make Johannesburg the capital of the heart of South Africa.

The Diamond Mines of Kimberley.—South Africa is the world's greatest producer of diamonds. Most of these diamonds come from the mines near Kimberley in the Cape of Good Hope Province, and Pretoria in the Transvaal.

Just as the discovery of gold made Johannesburg, so the discovery of valuable diamonds in 1870 caused the birth of Kimberley.

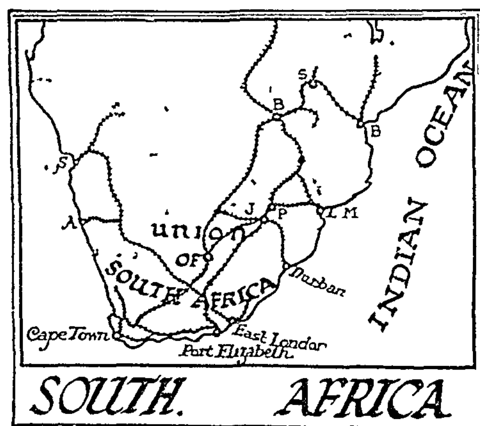
The diamonds are found in a bluish clay which is dug out by natives. The clay is passed through machines



THE PREMIER DIAMOND MINE OF SOUTH AFRICA.

which wash and crush it, and sort out the contents until the diamonds are caught on shaking tables covered with grease.

Routes and Railways.—A map of the railways of Africa shows that the Union has more railways than any other part of Africa, and that these railways are thicker on the eastern half of the country.



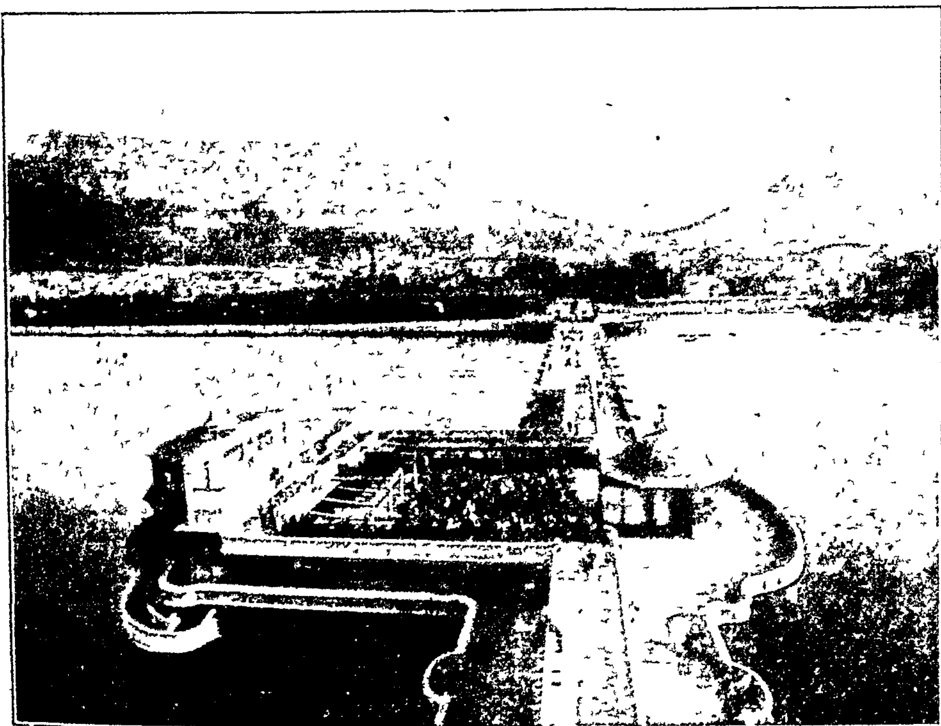
Why are there more railways on the eastern half of South Africa? From what we have already learnt about South Africa, we know that with the exception of the south-west tip the most important regions lie on the eastern half, because of the greater rainfall, the better production of all kinds of crops, and the position of the mineral bearing-rocks, particularly of the gold at Johannesburg, and the diamonds of Kimberley. Hence the railways serve the eastern regions rather than the western regions, which are mainly semi-desert.

Cape Town is the most important terminus of traffic into and out of South Africa. All routes begin and end at Cape Town—sea-routes, roads, railways, air routes.

The Cape to Cairo Route.—For many years there has been talk of a railway route from Cape Town to Cairo. By means of such a route Africa would be easily crossed from north to south—a distance of more than 5500 miles.

The railway has gradually spread from both ends—

from Cairo in the north and from Cape Town in the south—but there are still large gaps to be filled. It must be remembered that railways are expensive to build—especially through the heart of Africa, where railway



THE PIER AT CAPE TOWN Notice Table Mountain.

building means crossing mountains, tropical forests and swamps, and the bridging of mighty rivers.

Follow out the possible rail route from the Cape to Cairo. Notice the large portions of railway that have been built, the termini of each of the pieces, and the types of region still to be crossed.

Notice also the important lines from the east coast reaching inland, how they link up with the main Cape-

to-Cairo route, and how near they are to the main route. Do the same with the two railways stretching from the west coast, especially the one that feeds the Katanga copper mines of the Congo Basin.



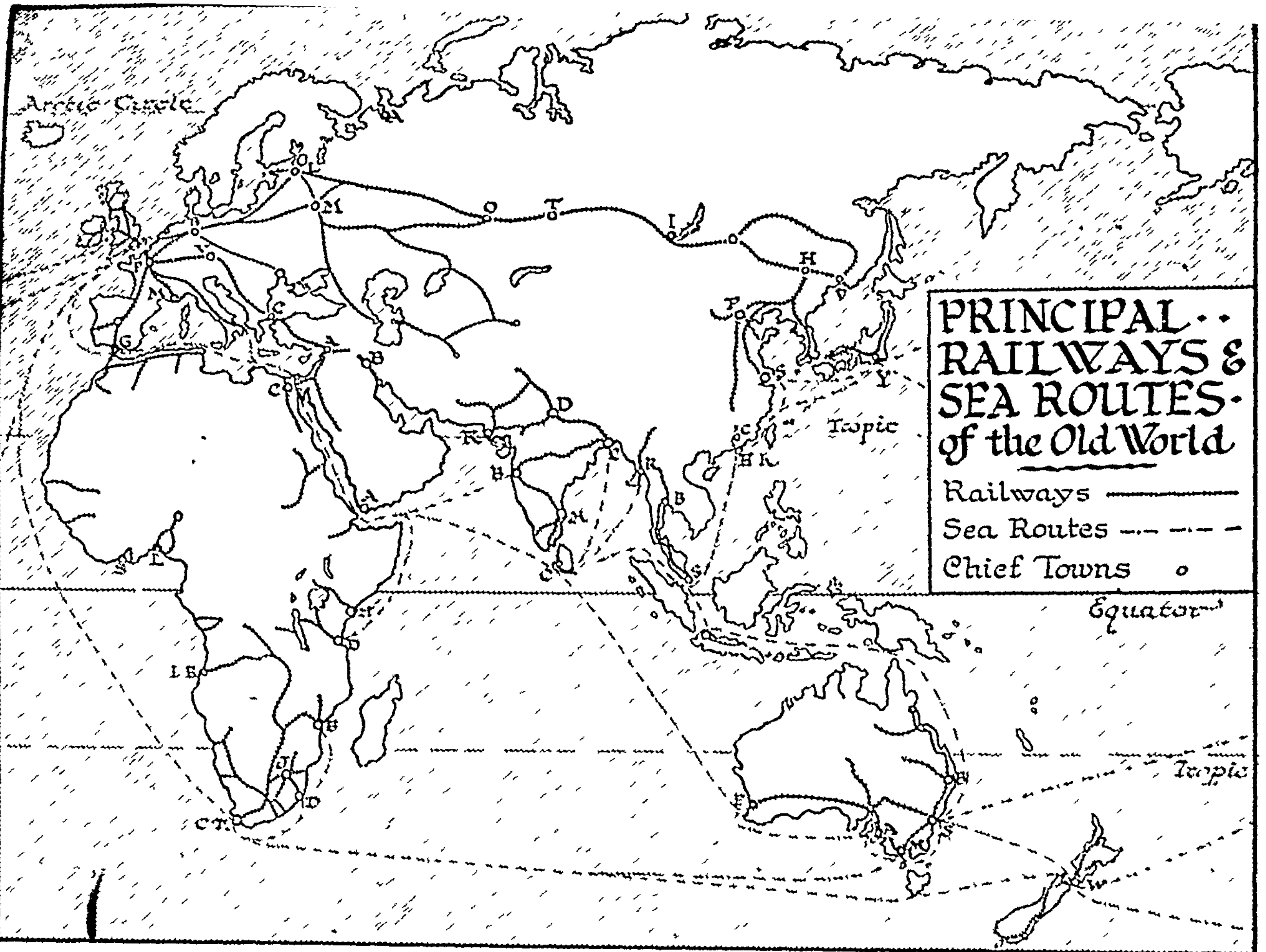
Native children of S. Africa outside their homes

Roads.—Until the coming of the white men to Africa, roads as we know them were unknown. The routes were dirt tracks made by the movement of the cattle or the natives, and in the wet seasons they could not be used far from the native village.

To-day, the white man has built and developed towns; and good roads lead from most of them. In other regions wide roads have been cut, although most of them are not yet *metalled*. Hence the motor-car, and motor transport of all kinds, is being used more and more, and is spreading farther and farther into all parts of Africa.

Air Routes.—The Cape to Cairo route, by rail or road, is by no means complete, but another method of travel is beginning to show how such a long journey (5520 miles) can be done much more easily and quickly.

This method of travel is by means of the aeroplane, which can easily cross marshes, swamps, mighty rivers,



With the help of an atlas find out the names of all the towns and ports marked.

tropical forests, high mountains, waterfalls and raging torrents, and even the hot desert.

To-day, there is an air service from London to Cape Town by way of Cairo—a distance of over 8000 miles. This journey takes just over a week.

1. On a blank map of South Africa outline all the states forming the Union of South Africa. Mark the chief town of each state. Put in the railways with red ink.

2. Copy the diagram on page 65. Colour all the land yellow, and the sea blue.

3. Say what you know of (1) the karroo, (2) a kopje, (3) bush, (4) an artesian well.

4. Put the chief products of South Africa in their order of importance. Write a name opposite each to say where they are produced.

5. "The region round the Cape of Good Hope has a Mediterranean climate." Say exactly what this means. What are the chief products of this region?

6. Find out from books how gold is obtained in South Africa. Write a short account of the process.

7. Find out from books how diamonds are produced in South Africa. Write a short account of the process.

8. On a blank map of Africa mark (a) the proposed "Cape to Cairo" railway, putting in the existing "feeders" from the coast; (b) the "Cape to Cairo" air route.

* * * * * *

You have now completed a short study of Africa.

When you have done the exercises, arrange your pictures, stamps, etc., to illustrate your work.

The result will be a short *Picture Geography Book of Africa.*

XI

EUROPE AND ASIA

In our studies so far, we have studied some of the conditions occurring in the western portion of the Old World, namely Europe and Africa. We have seen that certain natural laws appear to govern the climate and natural vegetation of Europe and Africa from the far north to the extreme south, and that these conditions have some kind of balance north and south of the Equator, just as they have in the Americas.

Having looked at, and studied, the maps of Europe and Africa together, showing the changing conditions of climate from the extreme north to the extreme south, and having seen how these differences partly account for the differences in the lives of the peoples of the regions—we shall now give most of our attention to the largest part of the land mass of the Old World, namely Asia.

We shall again include Europe in our studies, but this time the study will be of Europe and Asia, and a study of geography *from east to west,* as well as from north to south.

Eurasia.—A glance at the map of Europe and Asia together (sometimes called Euro-Asia or *Eurasia*) shows that Asia is much the larger part. But, although these two continents are separated politically, yet geographically there is almost no boundary between the two. For example, the various natural regions, such as the enormous belt of Coniferous Forest, and the Steppe lands in South Russia are continued to the east into Asia for hundreds of miles. Consequently the lives of the

peoples in the east of Russia and the west of Asia will be very similar.

The map shows that Europe is really only a *western peninsula* of the land mass of Asia, being enclosed on all sides except the east, by the sea.

This large land mass of Europe and Asia joins Africa at the narrow isthmus of Suez. Everywhere else it is surrounded by ocean and sea. Just as Africa would be a large island if it were not for the isthmus of Suez, so would Europe and Asia be another island. only very much larger.

Highlands.—The study of the physical map of this part of the world is very interesting. The first thing that catches the eye is the enormous mass of high land in Asia. This spreads right across Asia from the south-west to the north-east and to the south-east. forming roughly a large triangle.

This huge mass of mountain and plateau consists of many ranges enclosing vast, high plateaux. The highest mountains of the world are *the Himalayas*, which form the southern edge of the mass, and which are the high, northern boundary and barrier of India.

The greater part of the mountain mass of Asia consists of *folded* mountains. These join those of Southern and Central Europe to form what might be considered as one vast belt—spreading from the Pyrenees, the Alps, the Carpathians, the Caucasus (all in Europe) to the various ranges and mountain masses of south-west Asia (in Persia and Afghanistan), then joining the main mountain mass of Asia in the Himalaya Mountains and neighbouring ranges, and finally bending sharply south

on the east of India and continuing through the East Indies to New Zealand.

Notice the Pamirs and the Hindu Kush Mountains in western Asia. There the folded mountains appear to meet in an enormous knot, which is so high that it is called the "roof of the world." From this knot the mountains spread their folds in almost all directions towards the east across Asia.

Folded mountains occur in regions where the land has, in past ages, been crumpled and folded up against more solid regions. What marvellous and terrific forces must have been at work to have moulded and crumpled this part of the earth's surface to form such a remarkable series of high lands—running from Spain in the far south-west of Europe to the remotest corners of eastern Asia. Notice the names given to these folded mountains in the different regions.

Learned geologists think that these mountains of Southern Europe and Asia are some of the youngest in the world, having been formed by the latest shrinkings, on a big scale, of the crust of the earth. This shrinking, possibly due to the gradual cooling of the earth's surface, caused this part of the world to pile up great folds of the earth's crust. The sharp curves of some of these folds show where the younger rocks were folded up against regions of much older and harder rocks. These older rocks, sometimes called *block* mountains, are situated in India, south of the folded Himalaya Mountains; in the great Siberian plain to the north; and in the eastern coastlands of China.

Although the great earth movements, that caused

these mountains to appear, occurred hundreds of thousands of years ago, yet the region is still very unstable, for it is a region of earthquakes and many active volcanoes—as the map on page 148 shows. During the last year the newspapers have told us of earthquakes in Southern Europe, Java, New Zealand and Japan.

Plateaux.—The huge mountain mass of Asia includes many high plateaux, bordered by higher, folded ranges. The most important of these plateaux are Asia Minor. Iraq, Arabia, Pamir (the "roof of the world"), Tibet and Mongolia. Many of the inland plateaux are desert or semi-desert, because rain-bearing winds are unable to reach them; they are in the heart of the continent, and are also often surrounded by higher lands.

The Lowlands of Asia.—Now let us turn to the low lands, for they are usually the more important parts of any continent, because most people live on them. These lowlands are on the outer borders of the vast mass of high land.

1. *The Northern Plain of Siberia.*—This is a huge region of low land, with mighty rivers, such as the Ob, Yenesei, and Lena—all flowing to the cold northern seas. Few people live in this region, because of the extreme climate.

2. *The Lowlands of the South-west—around the Caspian Sea.*—These are a continuation of the European Plain of Russia.

3. *Mesopotamia*—the valley of the Tigris and Euphrates.

4. *The Lowlands of India*—especially those of the Ganges and Indus valleys.

5. *The Lowlands of Indo-China*—the lower valleys of the Irawaddy, Menam and Mekong.

6. *The Lowlands of China*—all of which are along the shores of the Pacific Ocean. The most important of these are the valleys of the Hoang-Ho, the Yang-tse-kiang, and the Si-kiang.

We shall learn more about these important lowlands in the following pages, for, as has been said before, it is on these lowlands where most people live, because they are the regions where people find it most easy to obtain the necessities of life—food, clothing and shelter.

1. On a blank map of Eurasia draw the 1200 foot contour. Paint all the land over 1200 feet yellow.

2. On the map above draw all the rivers marked in your atlas. Print the names on each.

3. On a blank map of the Old World mark all the places and regions mentioned in this chapter.

* * * * * *

Begin collecting pictures, maps and postage stamps of all kinds to do with Asia, particularly of China, Japan, India, Indo-China and the East Indies.

Make a collection of cuttings from the daily newspaper of anything to do with the above countries. (Particularly pictures and maps.)

Begin collecting pictures and maps of all kinds to do with Asia, particularly of China, Japan, India and the East Indies.

XII

THE CLIMATES OF EURASIA

Now let us consider Europe and Asia as a unit from the point of view of climate—very roughly—by noticing first its position with regard to the Equator. The map shows that the Equator passes just south of Singapore, so that we can say that the land mass of Europe and Asia is in the northern hemisphere.

The tropic of Cancer passes through Southern China, the mouth of the Ganges and Southern Arabia, so that by far the smaller part of Asia is in the tropics.

Look now at the extreme north; it is seen that the northern shores spread far into the Arctic zone.

Thus, from our general knowledge of climate, we know that there should be a gradual difference in climate and therefore in vegetation, from north to south. But, as Asia does not reach into the southern hemispheres there can be no balance of climate and vegetation as there is in Europe and Africa, north and south of the Equator.

Europe and Asia taken together provide a very good study of the changes of climate that occur from east to west, as well as from north to south.

We have already noticed in our studies of the Americas and of Europe and Africa :—

1. That the conditions on the west of North America are different from those on the east of North America.

2. That, similarly, the conditions on the west of South America are different from those on the east of South America.

3. That there are also differences in the conditions between the west-coast lands of Africa and the east-coast lands. For example, south of the Equator there is the Kalahari desert on the west coast and luxuriant tropical vegetation on the east coast of the same latitude.

The study of Eurasia will show the differences between west coasts and east coasts in a more striking way, because of the greater distance between them.

* * * * * *

Temperatures of Eurasia.—The maps on page 102 show the average temperatures for Europe and Asia in winter and in summer.

I. Notice at each season the position of:—1. The coldest regions. 2. The hottest regions. 3. The more temperate regions.

II. Comparing both maps, notice the regions in Eurasia:—1. That are *cold* all the year round. 2. That are *hot* all the year round. 3. That have an *extreme climate* of very cold winters and very hot summers. 4. That have hot summers and warm winters—as in the Mediterranean lands. 5. That have a fairly *temperate climate* of no very great extreme of heat or cold—as in the British Isles.

Climate and Population.—Now look at the population map on page 117, and notice in which of the above regions most people seem to be living.

We already know that people live in all kinds of places, but that the most heavily populated regions are usually those that receive enough rain during the year to allow man to grow food.

Hence we must next study the yearly distribution of rain in Eurasia, and at what seasons the rain occurs.

Rainfall.—The maps on page 119 give the average rainfall occurring over Europe and Asia during the winter months and during the summer months.

I. Notice at each season :—1. The regions with most rain. 2. The regions with no rain. 3. The regions with moderate rain.

II. Comparing both maps, notice the regions :—1. That have rain *all the year round.* 2. That have *very little* rain at any season. 3. That have rain *mainly in summer.* 4. That have rain *mainly in winter.*

Seasonal Rainfall and Natural Vegetation of Eurasia.—In the studies of the Americas and of Europe and Africa, it was learnt that the type of vegetation that will prosper in any one region depends not only on the *amount* of rain received during the year, but also on *when* it occurs. (Study the maps on page 154.)

The map on page 55 divides Europe and Asia roughly into the various regions of Natural Vegetation.

Notice first the north and south distribution and how certain vegetation belts of Europe spread into Asia: 1. Tundra. 2. Coniferous Forest. 3. Temperate Forest of Broad-Leaved Trees. 4. Steppe land. 5. Semi-desert and Desert. 6. Tropical Grassland. 7. Tropical Forest.

That is the usual order we have discovered in our studies of the Americas and of Europe and Africa.

Notice particularly where each type is to be found in Eurasia, and then notice the *Seasonal Rainfall* of each region, from the map on page 154.

AN AIR VIEW OF AN IRAQ TOWN NEAR BAGHDAD.

Mesopotamia may be likened to Egypt in many ways. The greater part suffers from lack of rainfall, so that the water necessary for crops and for man must be obtained usually from the rivers.

The photograph shows a bend of the River Tigris where a small town has grown up. As can be seen, the life-giving waters of the Tigris have been made to grow crops.

The vegetation seen in the picture consists of groves of *date-palms*; notice that these palms are near the river, and that desert conditions occur not far from the banks.

Now look at the town. It stands a little away from the river bank. The beautiful Mohammedan mosque is the most important building and stands in the centre of the town. From its high minarets the priests can easily call the people to prayer, at regular intervals during the day.

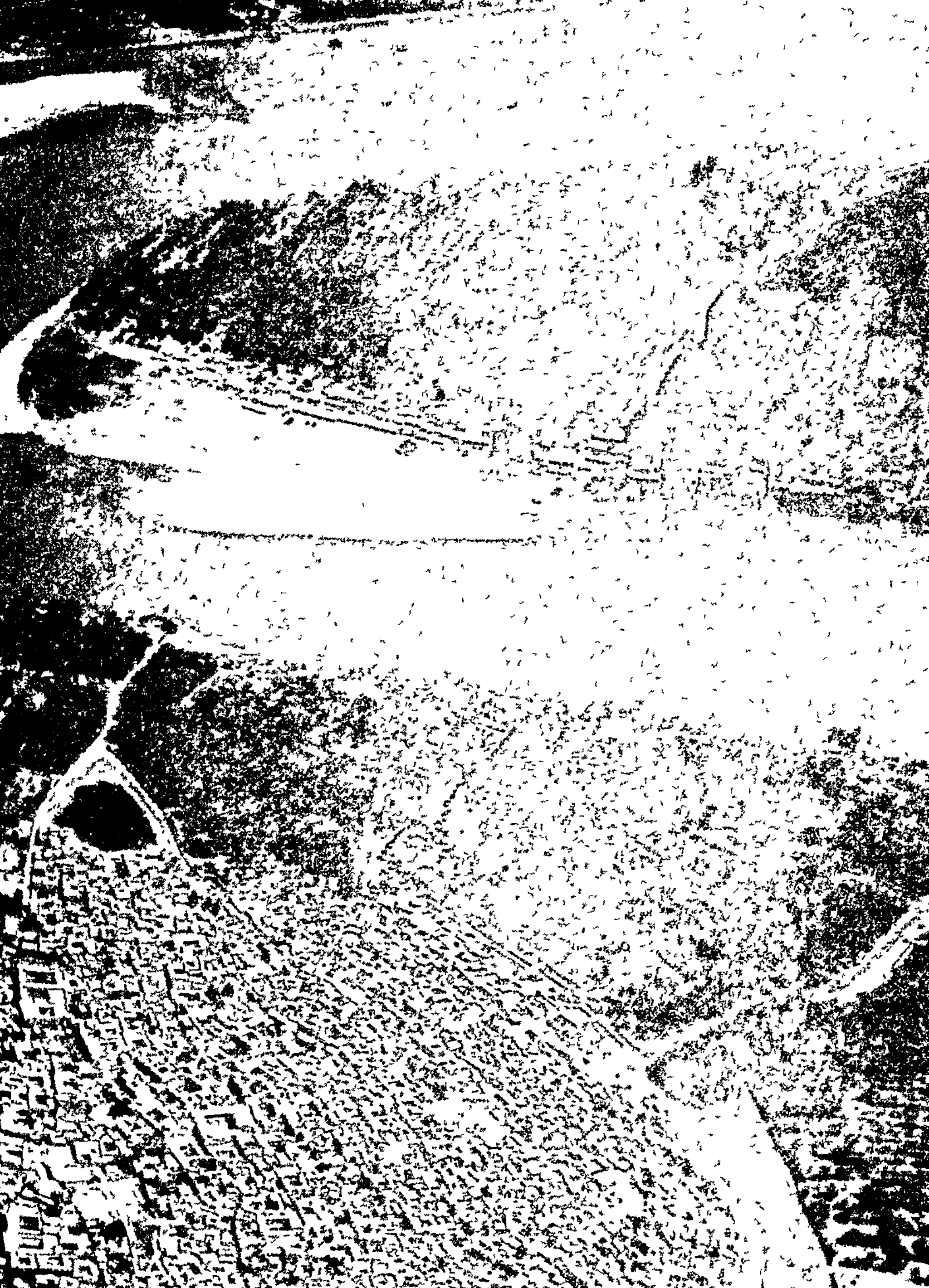
Notice the closely packed houses with their flat roofs, on which the owners may rest and sleep in the cool of the evening.

The water of the river was so clear that the airman who took this photograph was able to see the sandbanks at the bottom of the river; some of them have come out in the photograph.

The great bend of the river in the picture has been cut out by the moving water; the force of the current is strongest at such a place, and weakest at the opposite bank. The picture shows clearly the material that has been dropped where the current is weakest.



AN IRAQ TOWN NEAR BAGDAD



Now we must notice more closely the differences between the west-coast regions of Europe and the east-coast regions of Asia.

Vegetation of Western Europe.—The western coast-lands of Europe show the following types of natural vegetation from north to south :—

1. The region of Coniferous Forests.
2. The region of Temperate Forests of Broad-leaved trees, so common in our own lands.
3. The region with the Mediterranean type of climate.

Vegetation of Eastern Asia.—When we compare the above regions with the regions on the east coastlands of Asia, it is seen that there is little similarity between regions in the same latitudes. The two main reasons for the differences are first that, for corresponding latitudes, the climate of the east of Asia is colder than that of the west of Europe, and secondly, that the rain is more seasonal, falling mainly in the summer months.

The coastlands of Eastern Asia are much more similar to the coastlands of Eastern North America. Note the position of the cold and warm currents off Japan.

The Monsoons of Asia.—The whole region of the coastlands of Asia, south and east of the great mountain masses, are known as the "Monsoon Lands" of Asia. The word "*monsoon*" means seasonal, and is the name given to the winds that seasonally blow over south and east Asia. *In summer they blow from the sea* and so bring rain; *in winter they blow from the land,* in a direction opposite to that of the summer winds, and are consequently dry winds. Now you are beginning to see more clearly why the vegetation regions of the east

coasts of Asia differ from those of the west coasts of Europe, for the winds on the west coasts of Europe are mainly the prevailing south-west winds that bring rain to western Europe at all seasons—with the exception of the Mediterranean Lands that do not come under these winds in summer, and so receive no rain then.

The important fact about the monsoons is that they blow over any one region from opposite directions at different seasons, and so give alternate wet and dry seasons.

The effects of the monsoons are most noticeable on the lands washed by the Indian Ocean and the West Pacific Ocean. These lands are *East Africa*; *India*; *Indo-China*; *China* and *Japan*; and *North Australia*.

Notice that most regions of the East Indies are likely to receive rain from both monsoons, as both winds come from across the oceans before they reach these islands.

Population.—The population map on page 117 shows the importance of the Monsoon Lands of Asia, and especially of India, China and Japan—each the seat of a mighty empire. They hold more than half the population of the whole world, and nearly all the population of Asia.

Notice the other important region of heavy population in the Old World. It is Western Europe—the region of the prevailing Westerlies.

The above regions of heavy population are the regions that must be studied most carefully if we wish to understand the lives and work of the more important peoples of the world. Hence, in the following pages, most attention will be given to these regions.

1. On a blank map of Eurasia outline the regions that are frozen in January. Colour them blue. Print opposite these cold regions the names of the countries.

2. On the above map outline the regions which are hot and very hot in July. Colour them red. Print opposite these hot regions the names of the countries.

3. Into how many regions has the above colouring divided Eurasia? From this map and from the maps on page 102, write down the names of the regions that :—(1) Are cold all the year round. (2) Are hot all the year. (3) Have an extreme climate. (4) Have a temperate climate.

4. On a map of the Old World mark the prevailing winds. Then, on the same map, mark the areas having a good annual rainfall.

5. Make a list of the Natural Regions of Eurasia according to the vegetation.

Opposite each type of vegetation describe (a) what the temperature is like in winter and summer, (b) the amount of rain falling during the whole year, (c) at what season the rain occurs.

6. What are the Monsoons? What is the main difference between the rainfall of the Monsoon Lands of Asia, and that of Western Europe?

7. What will be the effect of the mountain barrier of the Himalayas on the rainfall of Tibet?

XIII

CHINA: I. (*a*) REGIONS AND CLIMATES; (*b*) NORTH CHINA

About one quarter of the world's population lives in China, and most of these 400 millions live on the lowlands of the mighty rivers, especially on the coastal flood plains. These coastal regions of dense population will receive most attention in this chapter.

The Physical Map shows the amount and the position of the high lands, the names of the chief rivers and their courses. Compare this map side by side with the population map, and notice the rivers and coast lands along which most of the people live. The Hoang-ho, the Yang-tse-kiang, and the Si-kiang are the most important. (The word *ho* means "river" in the north, while *kiang* means "river" in the south of China.)

Climates.—The maps on page 102 show that China possesses many kinds of climate, for the extreme north lies in cold regions while the south is situated in the tropics. Hence, as well as the differences in climate caused by differences of height above sea-level, there will be marked differences in climate as one travels from north to south or from south to north.

Consequently, for the purposes of study, China is usually divided into the three main regions from north to south according to climate—as shown on the map, namely:—

1. North China. 2. Central China. 3. South China.

The people on each of these vast regions live mainly on the flood plains of the mighty river that passes

through each—the Hoang-ho in the north, the Yang-tse-kiang in the centre, and the Si-kiang in the south.

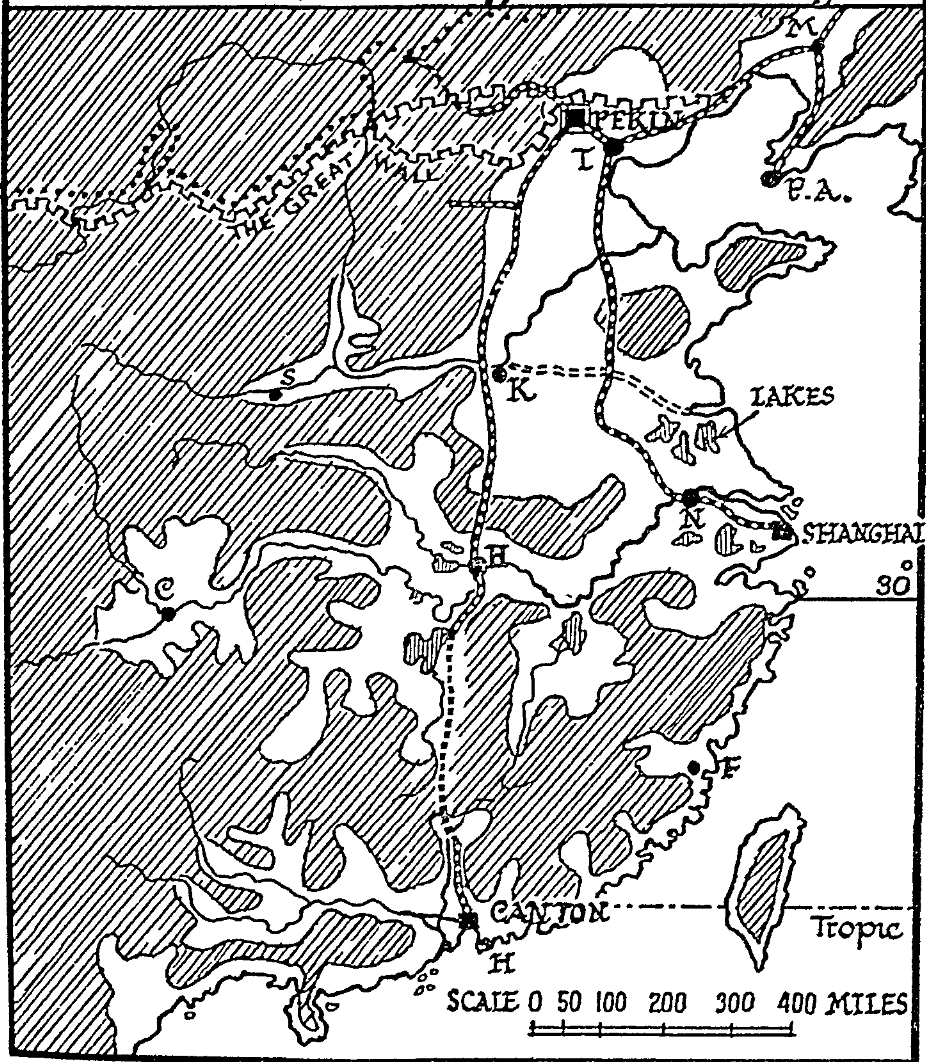
The *Hoang-ho* and the *Yang-tse-kiang* are two of the mighty rivers of the world, and more people live on them than on any other of the large rivers of the world.

Much of the vast region enclosed by the lower courses, or flood plains, of these two mighty rivers is known as the *Great Plain of China.* Many, many millions of people live on this fertile plain, which is forced to give as much food as possible. This can only be done by great skill, unceasing labour, extreme patience, and no waste.

Chinese Farmers.—The hundreds of millions of Chinese are chiefly farmers, growing crops of all kinds. Land is so precious that it cannot be spared to pasture cattle. The few animals, such as the ox, mule and donkey in the north, and the water buffalo in the south are kept only to do work—such as the ploughing of the fields or for the purposes of transport. These animals pick up their food where they can. However, pigs are kept everywhere, because they can live on what other creatures will not eat. Chickens, ducks and geese are also kept everywhere; they take up little room, cost very little to keep, and their produce fetches a good price in the markets.

The farms are usually so small that it is a great struggle for the owner to feed his family. Every one of the family helps in the fields; nothing is wasted. The farmer sometimes even works in his fields at night, so that he will be able to get as much as possible from his land.

North China and the Hoang-ho.—North China might be considered as the basin of the Hoang-ho, the



Notice carefully each of the three regions :—(1) North China—the basin of the Hoang-ho. (2) Central China—the basin of the Yang-tse-kiang. (3) South China—the basin of the Si-kiang. Note also the names of the chief towns and ports in each region, and how they are joined by the railways.

flood plain of which is the most important part of the Great Plain of China.

The *Hoang-ho* rises in the north-east edge of the high plateau of Tibet, 2800 miles from its mouth. Notice its course through the mountains, its right angle bends and the route through a broad low plain (the Great Plain of China) to the sea.

The Hoang-ho is called the Yellow River because it passes through a large area of fine, yellowish soil, called *loess*, through which it has cut deep gorges and canyons in its middle course. It carries much of this yellowish soil down to the lower reaches of the river.

Loess is a very fine soil, which is thought to have originated in the heart of Asia, and to have been carried by the wind to eastern Asia, where it has settled to a thickness of over 1000 feet in many parts. The loess region is extremely fertile, and the soil has been a blessing to the heavy population of the lower course of the Hoang-ho. But, as it is porous, irrigation is necessary for agriculture. This is done by thousands and thousands of canals, spreading from the Hoang-ho in all directions—the work of millions of patient Chinese during thousands of years.

But, in the higher courses of the Hoang-ho, the river has cut such deep channels, that the loess plateau above has to depend on the rainfall for its water. Unfortunately, such regions hardly receive sufficient rain at the best of times, so that drought and famine are the terrors of the population.

The Floods of the Hoang-ho.—Unfortunately, the Hoang-ho has been, and can be, a tyrant, as well as the

giver of good things, to the people that live near it. For this reason it is called "China's sorrow." Through the centuries it has destroyed thousands of villages, ruined the life's work of the owners of the fields, and killed millions of people living in the lowlands.

For 4000 years the people in this region have been trying to hold in the mighty Hoang-ho—and so prevent the disastrous floods which have done so much damage to life and property. The difficulty is that the Hoang-ho brings down so much silt that the bottom of the river is always rising. The result after thousands of years is that, in the plain, the river is higher than the land on either side, and continues to get higher.

Hence, for centuries, levees have been built to prevent floods. Higher and higher they have had to be built; but, one day, a break in the walls unexpectedly occurs, the river rushes out of its course, flooding the lowlands for miles around and finding fresh channels for itself in all directions.

The Hoang-ho has changed its course and its mouth so many times that a huge amount of silt, covering hundreds of square miles, has been deposited in this region of North China. The Hoang-ho now empties itself into the Gulf of Pechihli, but eighty years ago its lower course was farther south, and it then emptied itself into the Yellow Sea.

Climate and Products.—North China has very cold winters, the whole of the region, and even the large rivers, being frozen at that season. Winter is the dry season because the winds are from the heart of the frozen continent. The icy winds are very fierce and come from

almost desert regions ; as a result terrible and most uncomfortable dust storms occur. At Peking during the dry winter months everything is invaded by dust.

In spring, the landward winds become less and less severe, until the summer monsoon makes its appearance felt from the opposite direction, namely from the south-east. The *south-east monsoon* brings rain to North China (as to the rest of China) from May to September, being heaviest in July. North China receives less rain than the regions to the south, having only about 25 inches a year. This is about the same as London. But the climate of North China, on the whole, is much hotter in summer, than that of London, and colder in winter.

The Natural Vegetation Map of China does not tell us the conditions in China, for the Chinese have farmed so much of the cultivatable land that most of the natural vegetation of forest was removed centuries ago. Few forests are to be seen to-day. Fuel for the millions of inhabitants is so scarce that all kinds of usually waste material are used.

Wheat and Millets are the important food crops of North China. Both these crops require less rain and less heat than rice, which occupies so much of the cultivated land of Central and Southern China. *Soya beans* are the next most important crop. These beans are very nutritious, because of the quantity of oil in them.

Towns.—*Peking*, one of the most important towns of the whole of China, is the capital of North China. It is situated at the northern edge of the Great Plain, and was built as a strongly fortified place against the inroads

of the invaders from the dryer lands of the plateau. It is shaped like a huge rectangle with a high wall all round it.

It is at the meeting place of routes to and from Mongolia in the north-west, Manchuria in the north-east, the Shansi district and coalfield in the south-west, the



A SCENE JUST OUTSIDE PEKING.
The road leads to the Jade Pagoda. Notice the rice field and the children playing in the water channel.

Gulf of Pechihli by way of Tientsin to the south-east, and to and from the heavy populated regions of the south, by way of Hankow or Nanking. The railway map shows that the railways radiate from Peking. They usually follow the same routes as the old roads, and also feed all the regions mentioned above. Peking has a population of about 1,300,000.

COOL
Arctic Circle
50°
WARM
COOL
50
HOT
70
VERY
HOT
70
Tropic of Cancer
Sun directly over head (at noon) in July
90°
80°
VERY HOT
Equator
Equator
HOT
70°
70°
Tropic of Capricorn
WARM
WARM
50°
50
COOL
SOUTHERN WINTER TIME

Hottest and Coolest Areas in July.

Arctic Circle
32°
FREEZING
32°
50°
50
COOL
WARM
WARM
Tropic of Cancer
70°
70
HOT
HOT
HOT
HOT
80
VERY HOT
Equator
80°
90°
80°
Sun directly over head (at noon) in January
Tropic of Capricorn
VERY HOT
HOT
70
70
50°
50°
WARM
SOUTHERN SUMMER TIME

Hottest and Coolest Areas in January

Note that the above temperatures are sea level temperatures

Just north of Peking runs one of the wonders of the world—the *Great Wall of China.* This was built about 2000 years ago by the emperor of the Chinese dwellers of the fertile plains to keep out the invading Tartars from the northern plateaux. It ran for more than 1000



A PART OF THE GREAT WALL OF CHINA.

miles into the heart of Asia, was wide enough to allow traffic to journey along it, and had towers about every two or three hundred yards, so that good watch could be kept.

This wall can be still followed to-day, over hill and plateau, rivers and plains, and is a lasting monument to

the skill and patience of the Chinese peoples, and to the civilisation that must have existed there so many years ago.

Tientsin is the port of Peking and is the most important town of Northern China. Railways join it to Peking and the rest of China. It is on the Grand Canal, built hundreds of years ago, which runs for so many miles to the south, and which joins Northern China to Central China and the Yang-tse-kiang.

Notice the absence of large towns on the Hoang-ho and its mouth. You should be able to work out the reasons for this, if you have understood what has been said above about the floods.

1. Trace an outline map of China showing the three main rivers. Colour yellow all the land over 3000 feet.

2. On the above map mark in black ink the winds in summer, and in red ink the winds in winter. Underneath the map, write the names of the winds which bring rain to each of the three main regions of China.

3. Trace a map of the Hoang-ho. Mark the chief towns on it or near it.

4. Underneath the above map write the names given to this river, and say why the river has been called these names.

5. What is *loess?* How was it formed ? What are its advantages ? What are its disadvantages ?

* * * * * *

Collect pictures of the lands and lives of the Chinese: scenery and vegetation, animals, houses, work, peoples, and the life in towns.

3rd Term.

XIV

CHINA: II. (*a*) CENTRAL CHINA
(*b*) SOUTH CHINA

Central China.—This consists mainly of the valley of the Yang-tse-kiang, which rises near the Hoang-ho in the Tibet plateau, and follows a course to the east, south of the Hoang-ho.

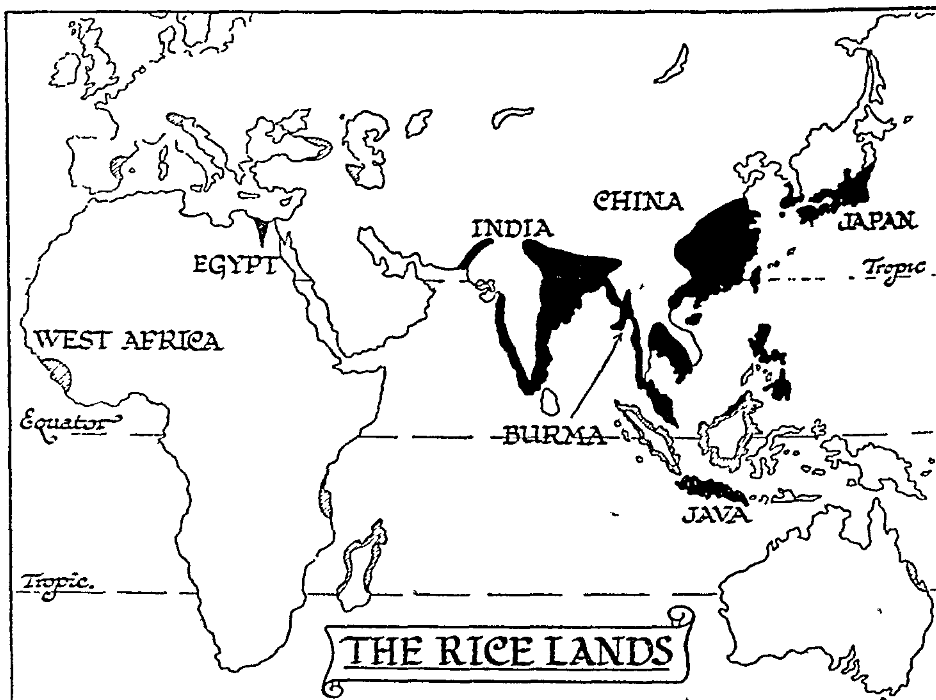
The main differences between this region and Northern China are those caused by the warmer climate, and a heavier rainfall. A journey from the North China Plain to that of Central China shows a very similar general scenery, but the difference is felt in the warmer climate and is seen in the different type of vegetation and crops. Just as wheat is the main crop of dryer North China, so *rice* is the main crop of the Central region. Flooded rice fields are seen almost everywhere.

Central China is the most important of the three large regions of China. It has the largest population, and more large towns than either North China or South China. But it is to the Yang-tse-kiang that it owes this importance, as we shall see.

The Yang-tse-kiang in its lower courses flows through an enormous plain, which, although it might be considered as the southern part of the Great Plain, is quite free from loess. The river flows over a much harder bed than the Hoang-ho, and consequently brings down less silt. Also, the river basin has many lakes, which act as reservoirs, and so help to prevent such disastrous floods as occur in the valley of the Hoang-ho.

On the coastal plain and on the delta, millions of people live by agriculture. Rice, silk, and cotton are the chief products—particularly *rice*.

Chinese Farmers.—As we saw in our study of Northern China, the Chinese are the most patient, care-



ful and hard-working farmers in the world. In the lower part of the Yang-tse-kiang the land is so thickly populated that every inch of soil is made to grow something. Nothing is wasted. The Chinese do not spare themselves, for their farms are small, and only incessant work and care will provide a crop sufficient for the needs of their families.

The results of their handiwork are seen in the intricate

net-work of fields, canals, embankments, and the amount of food that is produced from very small farms.

The soil is very fertile, but the Chinese make it still more fertile by careful digging, irrigation and manuring. This clever handling of the soil, combined with the climate and the fertility, enable the Chinese farmer to



Transplanting rice in flooded Chinese rice-fields

obtain *three or four crops* from the land. As soon as one crop is harvested, the land is rapidly prepared for another; and so his work goes on, from week to week, from month to month, and from year to year. Yet most of this work is still done by hand, using only very primitive instruments, which, however, are the best for such work.

Rice Growing.—Rice is easily the chief crop and is grown mainly for food. But it is a plant that takes

much labour and care to obtain a good crop. A portion of the field is prepared as a seed bed. In this the farmer grows tiny seedlings of rice. While these are growing, he may use the rest of the field for another crop. At the proper time, he causes the main field to be flooded, for rice grows best in flooded land. Then the usual sight is to see the Chinese farmer ploughing this flooded field with the aid of a huge water-buffalo that has terrifying horns.

The field is churned up in this way into a kind of liquid mud. When this work is finished, the young seedlings, that have been growing in another part of the field, are ready for transplanting. Men, women and children all help in this important work. A handful of the young seedlings is taken at a time and carefully stuck into the muddy, flooded field. This continues until the whole field has been planted.

At harvest time the crop is gathered by hand, the coolies using a small hand sickle. The crop is threshed by hand.

Silk Production.—Chinese silks have always been valued by all peoples, at all times. The climate of most regions, except the very bleak areas of North China, is very favourable to the growth of mulberry trees. On the leaves of these trees millions of silk-worms are reared for the sake of the silk-bound cocoons made by them. Huge quantities of raw silk are obtained in this way by the Chinese farmers and their families. Most of it is manufactured into beautiful silks. (The chapter on Japan will give you more details concerning the silk industry.)

Communications, Ports and Towns.—The wide river gives a good route from the coast inland, so that large steamers can go up the river as far as Hankow. (The

river is the main gateway into the heart of China, and its importance is shown by the enormous traffic and trade that occurs on it.

Shanghai, with $1\frac{1}{2}$ million people is easily the greatest city and port of this region. Situated just off the mouth

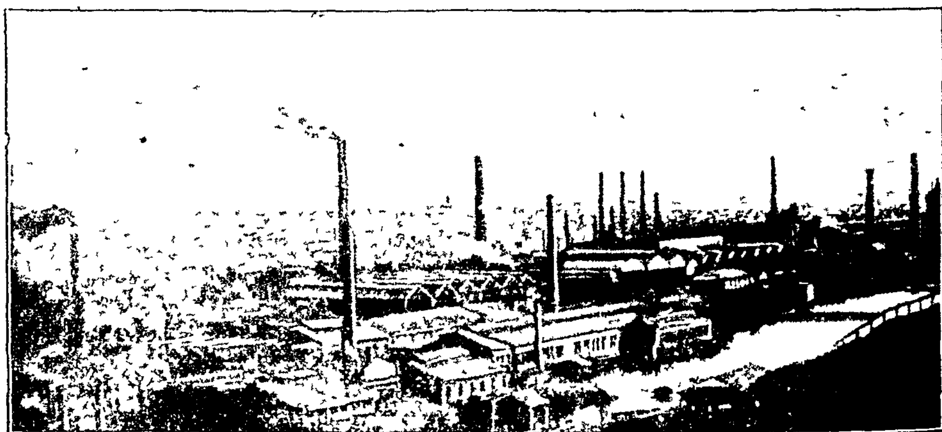


A PART OF SHANGHAI.
Notice the factory chimneys, the modern buildings, the tram lines, and the telegraph poles.

of the Yang-tse-kiang, it receives goods from all parts of the world and distributes them up the Yang-tse. The produce of the fertile plain and river valley comes down the river to Shanghai, from whence it is exported. Notice its convenient position for trade in the Far East—the central point between the heart of China, North

China, and South China. Manufactures of all kinds take place there, from hand-made industries to the cotton and silk goods made in the large mills and factories.

Hankow, with a population of 1½ millions, is the important river port receiving and distributing goods from and to the inland region. It acts as an inland depot for Shanghai. Ocean-going steamers can go as far as Hankow—a distance of 700 miles from the sea.

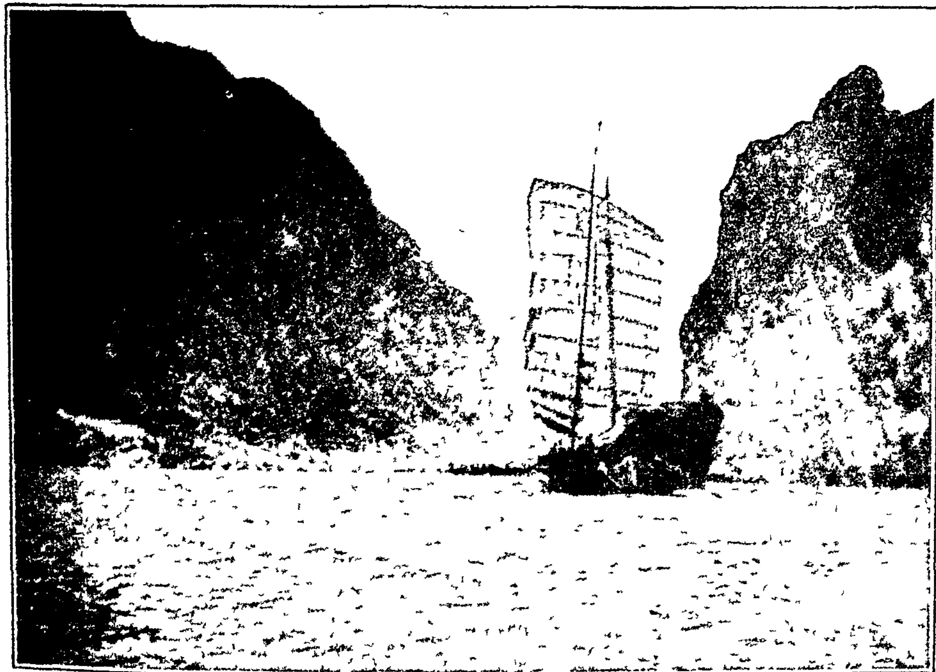


Some of the modern factories at Hankow.

But the river is so large that smaller steamers can be used for hundreds of miles above Hankow—even as far as *Ichang.* Beyond this point the river flows through steep-sided gorges, through which the river rushes. There are also a number of rapids, so that a journey by junk through the gorges and past the rapids is a very exciting and often a dangerous business. In going upstream at this point, the usual method is for the junk to be towed against the current by a long row of heaving coolies—all chanting as they pull. A large junk requires 200 men to haul it upstream.

Nanking, with 360,000 people, is situated at the head of the delta—200 miles from the sea. It has been the capital of China since 1928.

The Products of Central China.—We have seen that the most important work of the millions of people



A Chinese Junk going through the Ox River Gorge on the Yang-tse-kiang.

living in this part of the world is to keep themselves alive on the products that they grow. For this purpose, *rice* is the chief product. *Wheat* is also grown, but not in such large quantities as in the cooler north. *Cotton* is an important crop. As woollen goods are seldom used in China, owing to their heavy cost, cotton and silk are the usual materials for clothing, warmth, etc.

Tea is grown on the well-drained hill slopes of the regions of the west and south, and is a very valuable product to the Chinese. Most of this tea is consumed by the Chinese themselves, and very little of the vast crop is exported to Europe. But heavily laden caravans travel into the heart of Asia with loads of "brick tea." This consists of cakes of tea made from the dust and leavings of the ordinary tea industry. It is eagerly bought by the peoples of Central Asia, and particularly by the nomads of the grassy steppes, who trade their animal products in return.

South China.—The mountainous land south of the Yang-tse-kiang might be considered the borderland between Central China and South China. It separates the valley of the Yang-tse from that of the Si-kiang.

The most important part of South China is the region drained by the *Si-kiang*. As in the Yang-tse-kiang, most of the many million people live on the lower course of the river valley, and on the coastlands—especially on the delta.

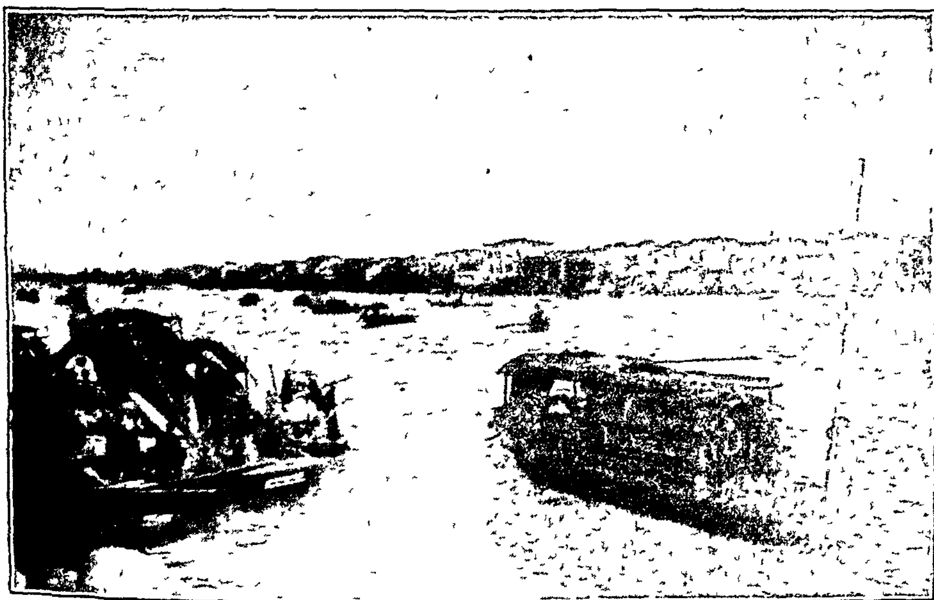
The map shows that South China will be the hottest of the three main regions of China. Its climate is really very similar to that of many parts of India.

The climate of the lowlands is most decidedly tropical, with very hot summers and very warm winters. Notice the position of the Tropic of Cancer. The rainfall is abundant, falling mainly in the summer months, as a result of the south and south-east monsoons.

Although the rainfall is seasonal, it is abundant and quite sufficient for the growth of large forests of bamboo, which still exist in many regions of the higher lands.

But, in the regions of heavy population, the natural forests have been cleared for many centuries, in order to grow the crops required by the enormous population. *Rice* is the main crop and the chief food of the peoples.

The delta of the Si-kiang is the most important region. The mud brought down from the mountains by



A RIVER SCENE AT CANTON
Chinese river boats in one of the mouths of the Si-Kiang.

the swiftly moving river is very fertile, and, as in the delta of the Hoang-ho and the Yang-tse, the Chinese take full advantage of this to cultivate as many crops as possible, and each crop as large as possible, on the smallest space.

The Chinese are gardeners, rather than farmers, in the care they take of their crops. Careful digging, the cutting

of numerous canals, the study of crops, and the fertilising of the land have been carried on for thousands of years. Two crops of rice each year, and during the cooler months crops of such things as millet, peas, beans and cabbage are obtained. Yet most of the work is done by hand, although the water-buffalo pulls the ancient plough through the water-logged land that is being prepared for the rice crop.

Canton stands on the fertile delta of the Si-kiang. It is one of the largest cities of China and one of the great cities of the world.

The sights of Canton, with its millions of people, would keep you interested at every turn. Most of the streets are so narrow that no ordinary vehicles can pass. Sedan chairs carried on the shoulders of coolies are the usual method of quick travel by those who can afford to hire them. The narrow streets, with the overhanging upper storeys of the houses, are like dark, almost underground, paths. These gloomy, narrow roads spread for miles in all directions, and are always packed with busy Chinese. working, shopping or attending to their private affairs.

But perhaps the most extraordinary sight at Canton is the river mouth. This appears to be packed with boats of all shapes and sizes, mostly native junks or sampans. As well as their use for water purposes for trade or fishing, they are also the only home of the owners. Men, women and children, and pets of all kinds all work, eat, sleep and die on these usually very small and ramshackle craft.

Canton is situated in the centre of a very fertile region, and is at the meeting place of inland routes—especially



A STREET SCENE IN HONG KONG

Notice the [illegible] and the Chinese [illegible]

water routes. Most of its trade is inland, the most important route being that due north, from Canton to Hankow. A railway has been planned to join Canton to Hankow and so make a through north to south rail-route from Peking to Canton. But so far there is a gap for many miles. The traffic on the roads leading north from Canton is still the same as it has been for hundreds of years, namely the *sedan chair* for the traveller, and the *carrying pole* and the *wheel-barrow* for goods.

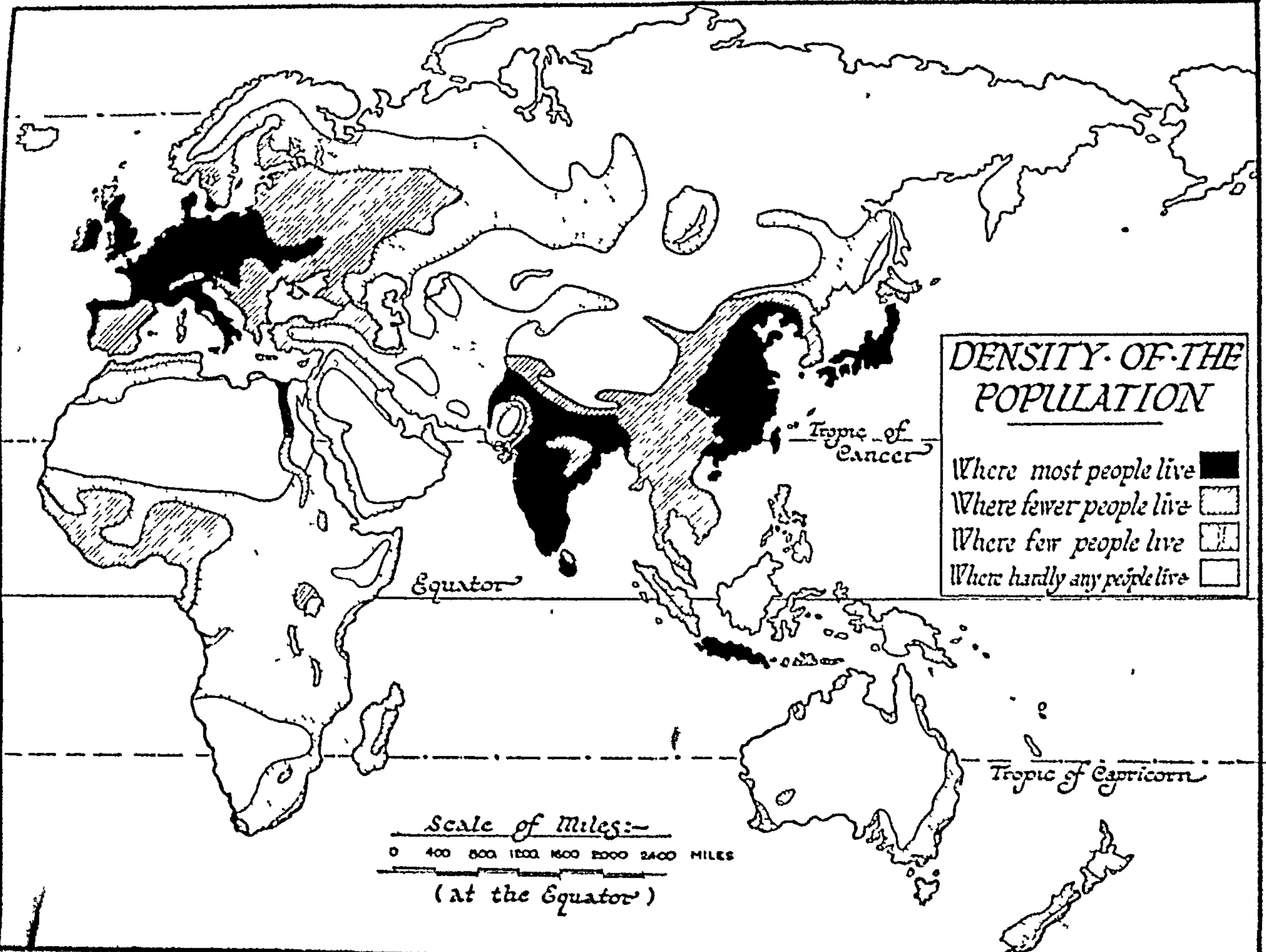
Until recently, Canton was the most important port of South China, but Hong Kong is the important port to-day.

Hong Kong is a British possession. It is built on a small hilly island of the same name. This island is separated from the mainland by a narrow waterway that makes an excellent harbour. Every convenience for loading and unloading ships quickly is there. It is more important than Canton, mainly because its trade is with all parts of the world, while that of Canton is chiefly Chinese trade. The trade of Hong Kong is so large that its value equals that of the whole of the trade of the Union of South Africa.

Its harbour is usually crowded with ships of every kind—men o' war, steamships, colliers, tramp steamers, large and small junks and hundreds of sampans.

China To-day.—China is now a republic. The Chinese are more willing to learn European ways of doing things.

China has enormous stores of coal and other valuable minerals, and is likely to manufacture more and more articles that are now imported from Europe and Japan. Large towns such as Shanghai have huge


DENSITY·OF·THE POPULATION
Where most people live
Where fewer people live
Where few people live
Where hardly any people live
Tropic of Cancer
Equator
Tropic of Capricorn
Scale of Miles:–
0 400 800 1200 1600 2000 2400 MILES
(at the Equator)

factories, in which goods are manufactured by modern machinery.

Motor-cars, electricity, trams, cinemas, telegraphs, telephones and wireless are almost as common to-day in the large towns of China as they are in the large towns of Europe.

1. "The Chinese are gardeners rather than farmers." Explain what this means.

2. Give an account of how rice is produced in China—from the seed to the harvest.

3. "China is the land of Rice, Tea and Silk." Write three or four lines telling how Tea and Silk are produced in China.

4. Describe the position of the railways of China. Take one of these railway routes; say which towns it joins, and say what additions the Chinese are likely to make in the future.

5. Describe three means of travel in China—on a journey from Shanghai to Chengtu.

6. Write a short account of the differences in climate and production between South China and North China. Write a few lines about any two of the large towns in each of these regions.

7. Why has Hong Kong a much larger trade than Canton? Draw a map showing its position.

* * * * * *

When you have read the two chapters on China, and have done the exercises, arrange your pictures, stamps, etc., to illustrate your work. The result will be a short *Picture Geography Book of China.*

WINDS & RAINFALL

Northern Summer Time

Sun directly overhead (at noon)

Equator

Tropic of Capricorn

AREAS WITH VERY HEAVY RAIN
AREAS WITH HEAVY RAIN
AREAS WITH MODERATE RAIN
AREAS WITH LITTLE RAIN
AREAS WITH ALMOST NO RAIN

Southern Winter Time

Northern Winter Time

Tropic of Cancer

Equator

Sun directly over head (at noon) in January

Tropic of Capricorn

Southern Summer Time

XV

INDIA: I. THE REGIONS AND CLIMATES OF INDIA

The population map of Eurasia on page 117 shows the three most important regions of the Old World, namely, Western Europe, the Chinese and Japanese lands of East Asia, and India.

India is an interesting study after that of China, because it also swarms with nearly as many people, having more than 320 millions. Yet the conditions of life are very different in many ways.

The physical map shows the position of India clearly with regard to the rest of Asia. It is cut off from the rest of Asia by the highest mountains in the world—the Himalayas—and by high lands on the west and on the east. The easiest method of entering India, whether for trade or for conquest, is by the sea.

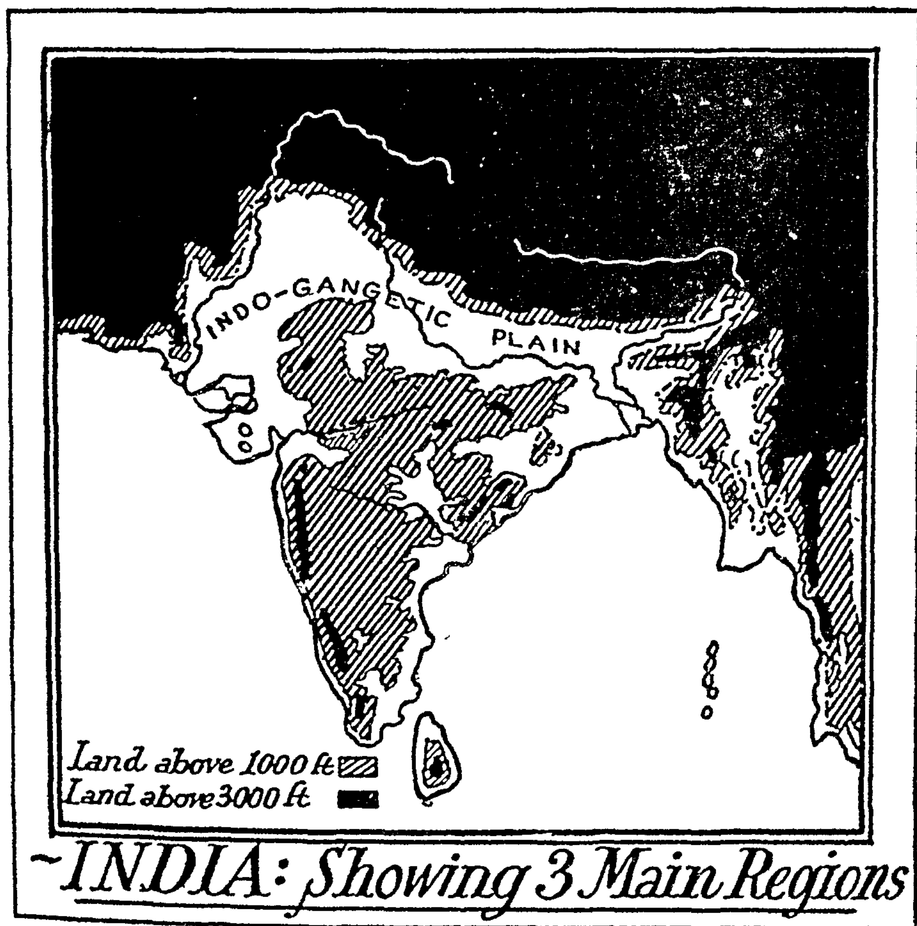
Look carefully at the physical map of India so that the main features will be remembered. This map shows clearly the three main regions from north to south:—

1. *The Himalaya region*—the vast region of high mountain and plateau that borders India on the north.
2. *The Great Plain* of the rivers Ganges and Indus.
3. *The Deccan.* This is the region of plateau that occupies most of India south of the Great Plain.

Let us glance at each of these in turn.

1. The Great Barrier of the Himalaya Mountains.—India is cut off from the rest of Asia by the mighty wall of mountains on the north. This wall is over 5 miles

high in some parts, and includes Mt. Everest (29,000 feet), and Kinchinjunga (27,815 feet)—the two highest mountains in the world. Only towards the north-west



INDIA: Showing 3 Main Regions

is there a possible entry by means of the Khyber Pass, so famous in history for the various land invasions of India, that have been attempted by means of it.

North of the high wall of the Himalayas is the broad,

high plateau of Tibet, stretching for hundreds of miles in all directions, and only a little lower than the Himalayas. This plateau is so high, and cut off from the rain-bearing winds, that it is mainly a desert or semi-desert region where few people live.

2. **The Great Plain of the Ganges and Indus.**—This is one of the most remarkable plains in the world. It is more than 2000 miles in length, and has an average width of about 170 miles. It is a perfectly flat plain almost everywhere, with the high mountains to the north and the plateau of the Deccan to the south.

This vast plain has been formed by the materials brought down from the high mountains by the many rapid streams. It is extremely fertile, is the most densely populated part of India and supports most of the hundreds of millions of the peoples of India.

3. **The Deccan.**—This is the name given to the broad stretch of plateau occupying most of the triangular part of India. It is bordered by ranges of hills to the north, and a much higher ridge of mountains along the west. This western border of the Deccan is known as the Western Ghats, which rise up quickly from the west coast, and slope gradually towards the east for hundreds of miles—thus forming the Deccan plateau.

This broad plateau is cut up by numerous rivers, the longest of which flow to the east as we should expect.

The Climate of India.—India is one of the monsoon countries of Asia. It has the tropical monsoon type of climate—for it is hot all the year round, and extremely hot in summer. The temperature maps for January and

July on page 102 show which are the hottest and coolest regions at each of these seasons.

But more important to the people of India is the amount of the rainfall, and, particularly, *when* it occurs. As India is a monsoon region, the seasonal winds or



An Air-View of part of the Mountain Barrier of North-West India.

monsoons bring rain to most regions of India at only one season. This depends on the direction of the monsoon.

The Monsoons in India are: 1. The South-west Monsoon which comes from the sea, and brings heavy rains during the summer months, especially to the western coast and the Ganges valley.

2. The North-east Monsoon, from the opposite direction, blows during the winter months, and is a dry wind for most regions, as it blows from the dry heart of Asia.

The rain-bearing monsoon is eagerly looked for, and prepared for, by the peoples of India. If the monsoon does not do its duty in the matter of rainfall, failure of the crops, starvation, disease and death are the result for many of the agricultural population.

The Natural Vegetation of any region of India depends mainly on the amount of rainfall received.

Forests.—Either tropical hot-wet forests or less thick forests known as Monsoon Forests, which shed their leaves, occur in those regions receiving heavy rainfall. Teak is the most important wood of the Monsoon forests, which occupy nearly one-third of India.

Tropical Grasslands, with much bushy scrub and small thorny trees, occur in those areas—such as the Central Deccan—where the rainfall is considerably less than that of the regions of the west coast, which receive the full benefit of the S.W. Monsoon.

Semi-desert or Desert Regions occur where less than 20 inches of rain falls in a year. Notice the great Thar Desert of N.W. India, and the semi-desert lands of parts of the east coast.

But, as in China, so many millions live by agriculture, that the Natural Vegetation no longer exists in a large part of India—especially in the lower lands. Out of all the land in India, one-third is used for growing crops; this is a large proportion.

There are about 320 million people living in India, and three-quarters of these earn their livings by means of agriculture. Let us see what they produce.

XVI

INDIA: II. INDIAN FARMERS AND INDIAN PEOPLES

Rice—as in China—is the chief food for most of the people; hence, over one-quarter of the farm-land of India is used for this important crop. Much rice is grown on the river deltas and on the hot, wet coast-lands. (See map on p. 106.)



An Indian girl harvesting rice.

Millets occupy about one-fifth of the farm-land, and are grown in the dryer regions, such as on the Deccan. (See map on p. 106.)

Wheat comes third in the list of food crops, and is grown in the dryer parts of Northern India during the cooler months of the so-called winter. (See the map on p. 169.)

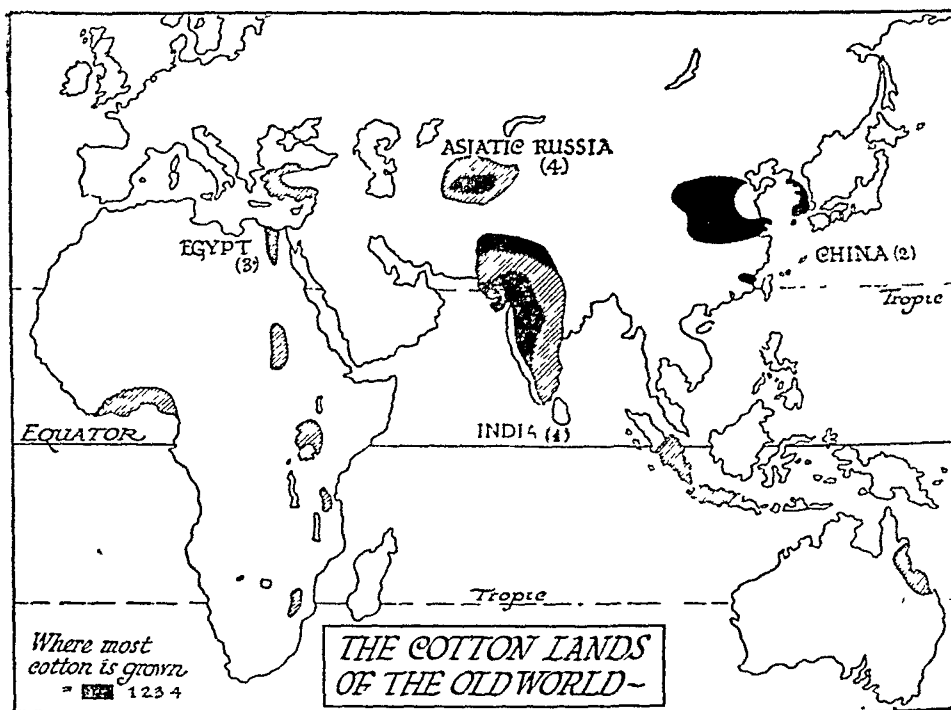


Indian girls in the wheat fields.

Other foods grown are maize, sugar, peas and beans of all kinds, numerous vegetables such as potatoes, cabbage, turnips, onions and tomatoes, and fruits such as bananas and plantains are seen everywhere.

Many spices, which the

early traders were so eager to obtain, are still grown. Nutmegs and cloves, chillies and ginger are produced, while the best pepper in the world grows in the damp, fertile soils of the Malabar coast.



Notice the regions in the British Empire where cotton is grown

Other Products.—Cotton and oil-seeds are the most important non-food products.

Cotton.—India comes next to the U.S.A. as a cotton producer. Most of the cotton is produced in the region known as the "black cotton soil" found in the north-west of the Deccan. This rich soil retains its moisture in a region that has not too much rain.

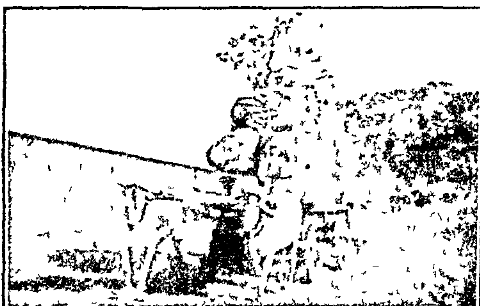
Most of the cotton produced in India is exported, but

more and more is being used in the cotton mills of Bombay, which is the largest town and very convenient port of the region. It is interesting to notice that, at present, cotton goods are the largest import of manufactured goods in India from our own lands—mainly from the cotton mills of Lancashire.

Oil Seeds.—The production of oil seeds in India is almost as valuable as the cotton crop. The most important of the plants whose seeds give valuable oil are



Raw cotton just picked.



Carting Cotton in India

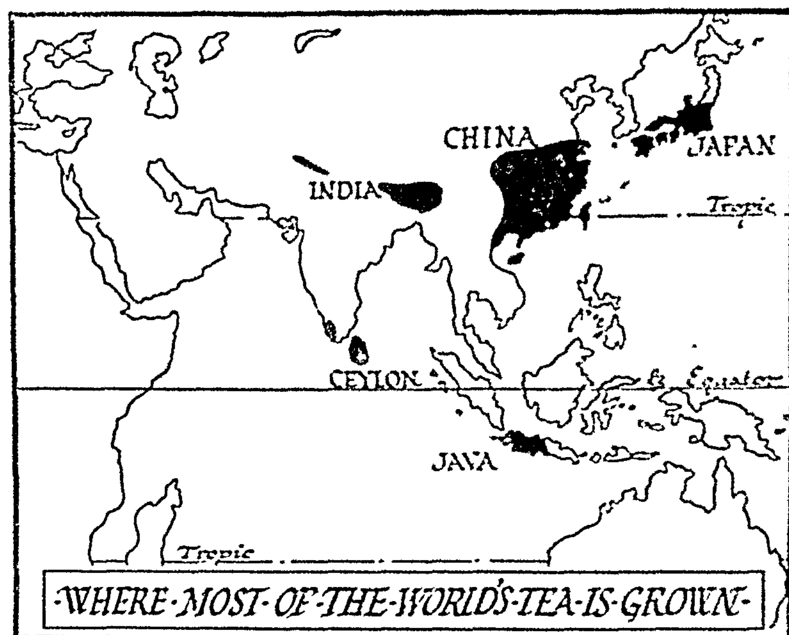
rape, flax, ground nuts (monkey nuts), castor and coconut. All these plants are grown for the oil which is pressed out of the seeds.

Most of these oils are exported, but the " cake " left behind, after the oil has been squeezed from the seeds, is of great value as a cattle food.

Jute, from which sacking is made, is a very important product of the low, wet lands of the Ganges delta. The fibres are obtained from the stems, just as the fibres for linen are obtained from the stems of the flax plant.

More jute is obtained from the Ganges delta than from any other region of the world.

Tea is another product for which India, and its large island Ceylon, are particularly famous. It is usually grown on the slopes of hills that receive a heavy rainfall, such as the lower slopes of the Himalayas. Assam and Ceylon also receive copious rain, and are so favourably situated for tea-growing that they are two of the most



·WHERE·MOST·OF·THE·WORLD'S·TEA·IS·GROWN·

important tea-growing regions of the world. Most of the tea used in our land comes from Ceylon.

Cattle, especially oxen and buffalo, are to be seen everywhere in India. Sheep, goats, horses, mules and donkeys are also common. But, as in China, the ox and buffalo are not reared for meat or milk, but are the beasts of burden; the camel is used in the desert lands of the north-west; and the elephant is used as a draught animal in the forests and timber yards.

The ox is usually a large white bullock with a hump. As it is considered a sacred animal, it is not killed for food. Bullock carts are a very common sight in India.

Farming and Irrigation.—The peoples of India have always lived by means of agriculture; the products of



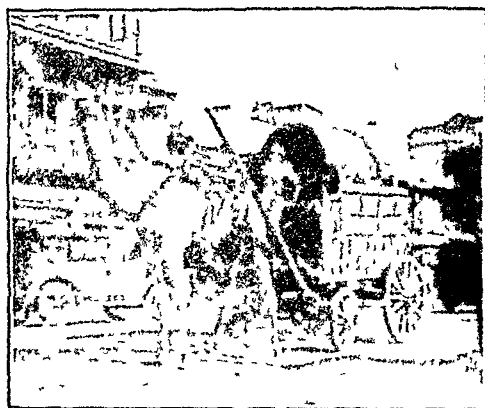
ELEPHANTS HAULING TIMBER IN INDIA.

the earth are the things that have always been most important to them, as to the peoples of China. But for thousands of years famine has been dreaded in many regions of India. If the rain-bearing monsoon is late, or does not give sufficient rain in any year, the drier regions do not receive enough for the needs of the food crops. Famine is the result.

Irrigation.—The fears of famine in India have been

lessened by the many irrigation works that have been built, at great expense, by the British Government. Not only has famine been kept off, but many regions with not enough rain have been made fertile by these wonderful irrigation schemes.

Most of these irrigation works have been built in the drier north-west of the Indus-Ganges plain. The water is obtained as follows :—The mighty Indus and Ganges rivers and their many tributaries receive a good supply of water from the Himalaya Mountains, which has a heavy rainfall in the summer months, and whose perpetual snows and glaciers always give a certain amount of water. But, as in Egypt, much of this water received during the wet season is wasted unless dams are built across the rivers.



A camel cart near Delhi.

Hence, in north-west India, the water is stored up by building dams across the rivers, at the points where they leave the higher land. This causes a lake to form. From such lakes numerous canals are cut, so that, in the dry season, the stored-up water can be distributed over a large area, which would be almost a desert if it were not for the life-giving waters, doled out by the men in charge of the dams and irrigation canals.

Towns and Railways of India.—Although most of the people of India live in villages and earn their

livings by means of agriculture, yet there are many large towns.

Notice from the map the large number of towns in the Ganges valley. *Delhi* became the capital again in 1912. It is situated at the meeting place of river routes, land routes, rail routes and air routes. Notice especially its position with regard to the north-west frontier, the Thar



Ploughing with two small oxen.

desert, and the mountains to the north. Invasions into the heart of India from the north-west were compelled, by the geography of the land, to pass through the spot on which Delhi stands.

Calcutta, with an enormous population of 1½ millions is the second largest town in the British Empire. It is the great port of the Ganges valley in which live so many millions of people. Its position does not give it a good

natural harbour, for the swampy delta of mud and jungle is a very difficult region. Yet, in spite of these drawbacks, the British Government have made this an important port, even although it is 70 miles from the sea.

Bombay, on the west coast, has $1\frac{1}{4}$ million people. It has an excellent natural harbour, and is a very important port. Situated on the north of the Western Ghats, it is built at the natural gateway into India from the west, and from Europe.


Indian Shoe-makers at Delhi.

It is one of the great manufacturing towns of India, and has many busy factories and mills with modern machinery, by means of which large quantities of cotton goods are manufactured.

Madras is the chief port of the south-east coast.

Karachi is the port of the Indus valley, and is the chief terminus of air routes from Britain to India.

Railways.—Notice how the railways have been built to join the large ports mentioned above, thus crossing India in all directions. Each of these ports is an important railway terminus, and four main lines run from each of them, except from Karachi. India has now about 40,000 miles of railways, and these are the most important means of transport in India to-day.

To give some idea of the enormous size of India, the train journey from Calcutta to Bombay takes 40 hours

for the distance of over 1200 miles. From Calcutta to Karachi is nearly 1600 miles, and takes 60 hours by train. Delhi is almost midway between Calcutta, Karachi and Bombay, being about 900 miles from each.

The Peoples of India and Their Religions.—India is almost a continent by itself—a tropical continent of high mountains and fertile plains, of tropical forest, jungle, savannahs and desert, with many wild animals and wild life of all kinds. Man uses about one-third of this vast land to grow the food he requires, and most of this food is naturally tropical produce. These products keep alive more than 320 million people—about one-fifth of the world's population.

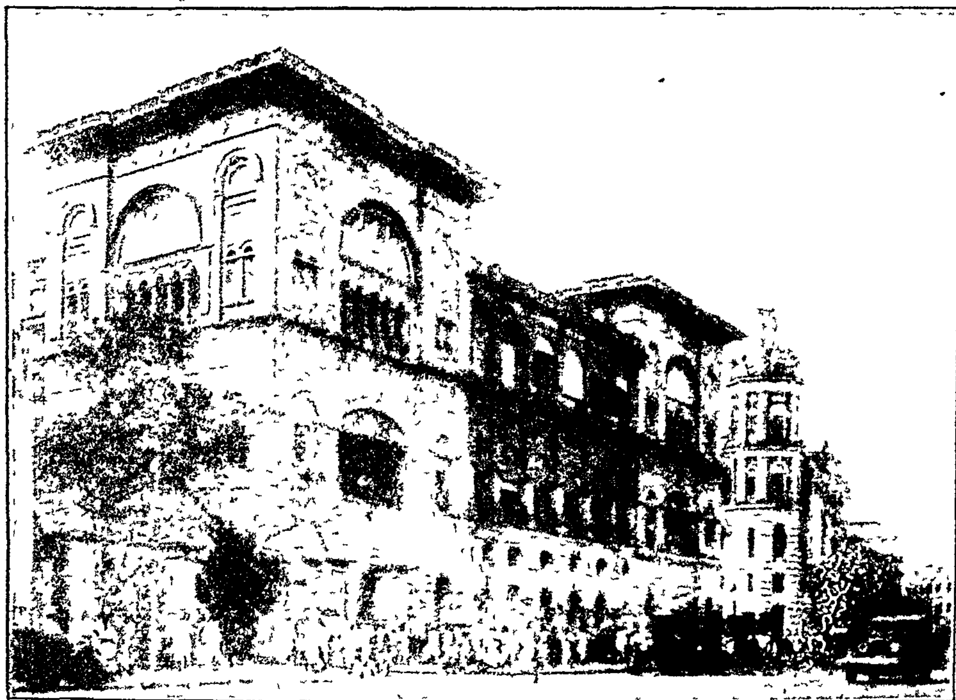


A pottery worker at Delhi.

Most of the people live in villages, and do not travel much. Their whole life is bound up with the business of growing enough to keep their families and themselves alive. There are few schools where the children stay for very long, and, consequently, many of the people of India are unable to read or write.

Just as a continent usually has many races with different customs and different languages, so India is populated by many different races, speaking many different languages.

Religion plays a very important part in the lives of the peoples of India. There are many religions in India, but there are two that have far more followers than the others. These two religions are Hinduism and Mohammedanism.



A street in Calcutta, outside the Railway Station.

Hinduism, the religion of the Hindus, has more followers than any other religion in India. This religion divides people into groups or " castes " according to the work they do.

Mohammedanism is the next most important religion, having about one-third of the number of Hindus. This religion is totally different in every way from that of the

Hindus, and these differences have often caused trouble and bloodshed between the two sets of people.

The Arabs of North Africa, the Turks, and many of the peoples of West Asia—on the north-west borders of India—are Mohammedans. It is one of the largest religions of the world.



AN INDIAN VILLAGE

Notice the state of the huts and the leanness of the cattle

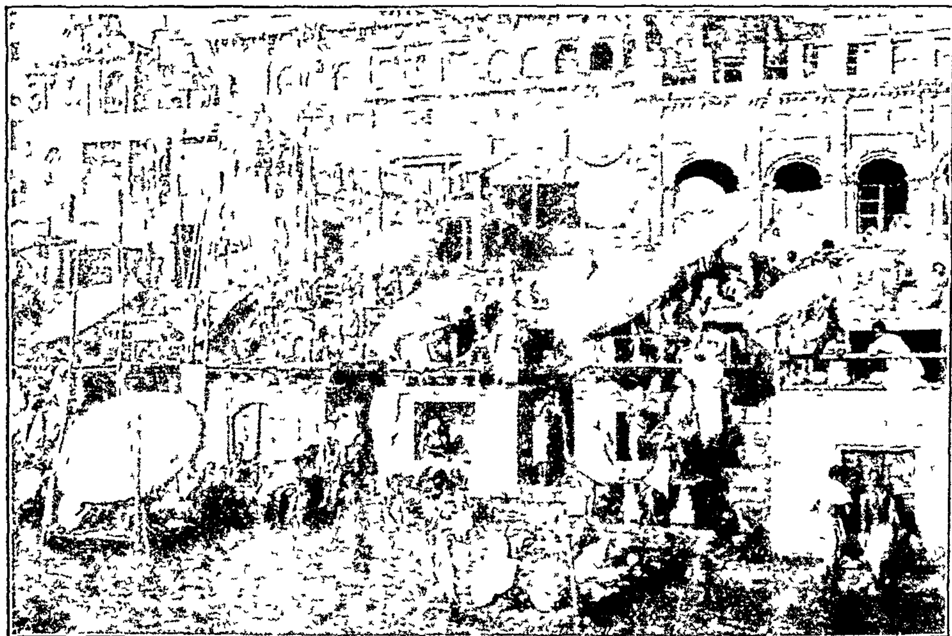
Buddhism is the third great religion in India, and most of its followers live in Burma.

Christianity comes fifth on the list, with only about five million believers out of a total population of 320 millions.

Differences of race, language and religion make it very difficult for the peoples of India to be a united people

like the British, the French, the Germans, the Japanese and the Chinese.)

1. From the atlas make a careful tracing of India, marking all the rivers. Colour all the land over



THE BATHING GHATS AT BENARES ON THE GANGES.
Benares is a holy city.

1200 feet yellow. Print the names of the three main regions of India.

2. Trace two small maps of India side by side. On one draw arrows showing the Summer Monsoons; colour blue the regions receiving a good rainfall from them. On the other map do the same for the Winter Monsoons.

3. How do most of the people of India earn their

livings? Give a list of their chief products, writing a few words about each.

4. Trace 4 blank maps of India, marking only the coastline and rivers. On these maps mark and colour the following regions of India:—(a) the cotton-lands, (b) the rice-lands, (c) the wheat-lands, (d) the tea-lands. [The maps required are all in this book.]

5. Describe how some of the regions of the Indus and Ganges Plains are irrigated.

6. On a blank map of India mark the four most important ports, and the capital town. Show with red ink how the railways have been built to join them.

7. What is the population of India? How many times is this greater than that of Britain ?

8. What makes it difficult for the peoples of India to become one nation, living and working happily together?

* * * * * *

When you have read the two chapters on India, and have done the exercises, arrange your pictures to illustrate your work. The result will be a short *Picture Geography Book of India.*

XVII

INDO-CHINA AND THE EAST INDIES: RUBBER AND TIN

Notice carefully in your atlas the regions on the mainland of Asia that lie between India and China. They consist of a large stumpy-looking peninsula, with the long narrow peninsula of Malaya jutting out from it on the west. You will see that the neighbour of India is Burma and Malaya; on the extreme east is French Indo-China; while between the two is the independent kingdom of Siam.

These regions between India and China are usually referred to, together, as *Indo-China*. This is a very good name, for not only is it the region between India and China, but the lands and peoples of the west are more like those of India, while those on the east are more similar to those of China. It is a peculiar borderland of regions, peoples, crops, habits and customs—between India and China.

Highlands and Lowlands.—The atlas shows clearly the general arrangement of the land, into parallel ranges of high, folded mountains running from north to south, with long river valleys between them. The lowlands lie along the chief rivers of each district. From the atlas follow the course of the *Irrawaddy* and *Salween* in Burma, the *Menam* in Siam, and the *Mekong* in Annam, Cambodia and Cochin-China, and the *Song-ka* in Tongking. What do you notice about the sources of all these

rivers and those of the three main Chinese rivers? Notice the large delta at the mouth of each of the rivers.

Few people live on the mountains and high lands; most people live along the flood plains of the rivers, and particularly on the deltas, as in China and India.

General Climate, Vegetation and Products.—As Indo-China spreads from the Tropic of Cancer to the Equator, the climate is tropical. The region also lies in the belt of the monsoons that have so much to do with the climate and vegetation of India, on the one hand, and of China on the other. Remember that these winds blow from the land in winter and from the sea in summer. Except in the inland plateaux, many regions of Indo-China receive rain from both monsoons.



A dwarf coconut palm.

The heavy rain combined with the great heat gives a natural vegetation of tropical and monsoon forest. Many wild animals, such as tigers and elephants, live in these forests. In the lower courses of the river valleys the forests have been cleared, and the usual Chinese and Indian methods of cultivation are seen in the flooded rice fields, which occupy most of the cultivated land.

Rice is the chief crop and the chief food. Enormous

crops are grown on the delta lands of each of the rivers. Large quantities of rice are exported from each of the ports at the mouth of each of the rivers—from Rangoon, Bangkok, Saigon, and Hanoi.

Valuable forests grow on the uncleared regions. *Teak*



Coolies transplanting rice in flooded fields.

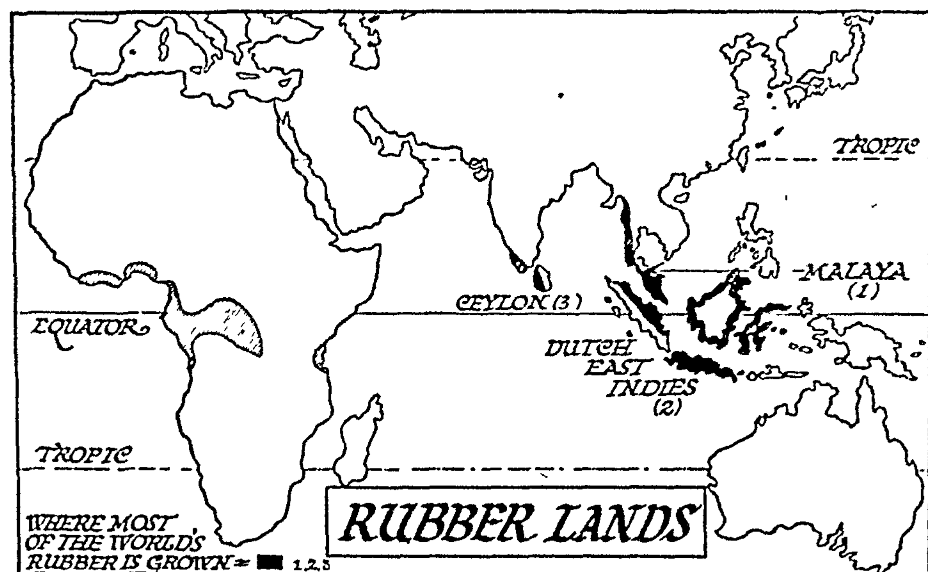
is the most valuable wood exported. Elephants are used to drag the heavy timber in some of the lumber camps.

The main products of these regions—rice, teak and minerals—come down to the ports by boat or by railway.

Malaya and the East Indies. Rubber Lands.— In our studies of the Equatorial Forests of the Amazon and the Congo, it was seen that, in the past, wild rubber was one of the most important of their products. But,

very little rubber has come from the Amazon or the Congo regions during the last ten years.

To-day, south-east Asia produces nearly all the world's rubber. *Malaya and the East Indies produce about three-quarters of the world's supply.* They are the rubber lands of the world. Look at the atlas to see what a large part of the East Indies belongs to Holland;



notice which parts of Malaya and the East Indies are under British Government.

Life on a Rubber Plantation in Malaya.—Rubber will grow almost anywhere in Malaya, as it requires a tropical temperature all the year round, with a heavy rainfall occurring at every season. In Malaya the rubber is grown on plantations that are usually under the management of white men.

A plantation is prepared in the following way. The jungle

is first cleared with the axe and by burning. The rubber seeds are planted in a nursery, and transplanted when the young trees are about a year old. The actual plantation never has more than about eighty trees to the acre.



Tapping rubber on a plantation in Malaya.

The trees will not give rubber until they are about six years old; during this time the plantation requires careful attention, particularly in keeping down the weeds in such a climate, and in preventing the soil from being washed away by the heavy rains. The latter trouble is avoided by planting the ground between the trees with crops that will help to bind the soil.

When the trees are ready to give rubber a single cut is made in the bark. over about a quarter of the tree's circumference. The liquid (latex) that oozes out of the tree is collected in an earthenware cup tied under the cut. This liquid rubber looks like milk and is just as thin. This milky liquid is taken to the rubber factory, where it is made more solid by adding acetic acid. The resulting product is

rolled and washed by machinery, and is then dried. The long strips of crêpe rubber formed in this way are then ready to be exported.

Most of the plantations are in the western lowlands of the peninsula. In this part of Malaya most of the people live. There are excellent roads, and many railways have been built to send the produce of the plantations and of the mines to the ports. *Penang* and *Singapore* are the most important collecting centres.

The Tin Lands of the World.—Malaya, Bolivia in South America, and Nigeria produce most of the tin of the world. Malaya produces more tin than any other country. Most of this tin is worked in the western valleys. The tin ore of Malaya is very rich in metal. As the tin ore is heavier than the ordinary gravel in which it is usually found, much of it is mined by means of machinery that uses water to wash away the lighter soil, leaving the heavier tin ore behind. Hardly any mining is done underground.

The tin ore is packed into bags, and sent by rail to Penang or Singapore, where it is smelted before being exported.

The Position of Singapore.—At the extreme point of the Malay peninsula is the island of Singapore, situated at one of the most important positions in the world. The town and port of Singapore is built on the south of the island of Singapore, facing the Strait of Singapore.

The Strait of Singapore is the best gateway into and out of the Pacific and Indian Oceans; hence the importance of Singapore. It is the meeting place of sea routes from Europe, Africa, Asia and Australasia. It

has a very good harbour and docks, is a coaling station, and an important base for the British Navy. An enormous amount of trade occurs at Singapore from all parts of the world. Singapore collects goods and distributes them by land and sea. A railway connects it with the mainland railways of the Malaya peninsula; by this means the raw rubber and the tin ore come to Singapore to be manufactured.


A coconut plantation

Java.—There is not space to deal much further with the East Indies, but some mention must be made of Java, the most important island in the East Indies. It is one of the most thickly populated countries in the world, having a population of over 40 millions.

Java is one of the most fertile spots in the world, and many valuable crops are produced by native cultivators and from plantations managed by Europeans.

Rice is the main crop grown by the natives, more than a quarter of the island being rice fields. Even then the population is so great that large quantities have to be imported from Indo-China.

Sugar is the most important plantation crop. It is grown chiefly on the Eastern and Central plains. Java

is one of the *sugar lands* of the world, being second only to Cuba.

Tea, coffee and rubber are other important plantation crops. But sugar is easily the most important export from Java; rubber, tea, tin and coffee coming next in order.

An excellent system of roads and railways has been built by the Dutch, so that the crops can be easily exported. *Batavia* is the chief town and port.

Throughout most of the tropical coastlands of Indo-China and the East Indies the coconut palm is the usual tree. The native gathers the coconuts, from which the white "meat" is dried into *copra*. A huge export in copra occurs. From this product valuable oils used in soap making and candle making are obtained.

1. Trace a map of Indo-China and the East Indies, marking all the rivers. Colour yellow all the land over 600 feet.

2. On the above map mark Rangoon, Penang, Singapore, Bangkok, Saigon, and Hanoi—on the mainland; and the names of all the large islands of the East Indies.

3. Write the life history of a rubber article used by you. Start from a rubber plantation in Malaya.

4. Name at least two places in Asia where the following are produced and exported in large quantities:—rice, tea, sugar, rubber, tin, teak.

5. Find out, and then write down, all the uses made of the elephant in certain countries of Asia.

6. Give as many reasons as you can for the importance of Singapore.

from here 3rd Term

XVIII

JAPAN: I. JAPAN AND THE JAPANESE

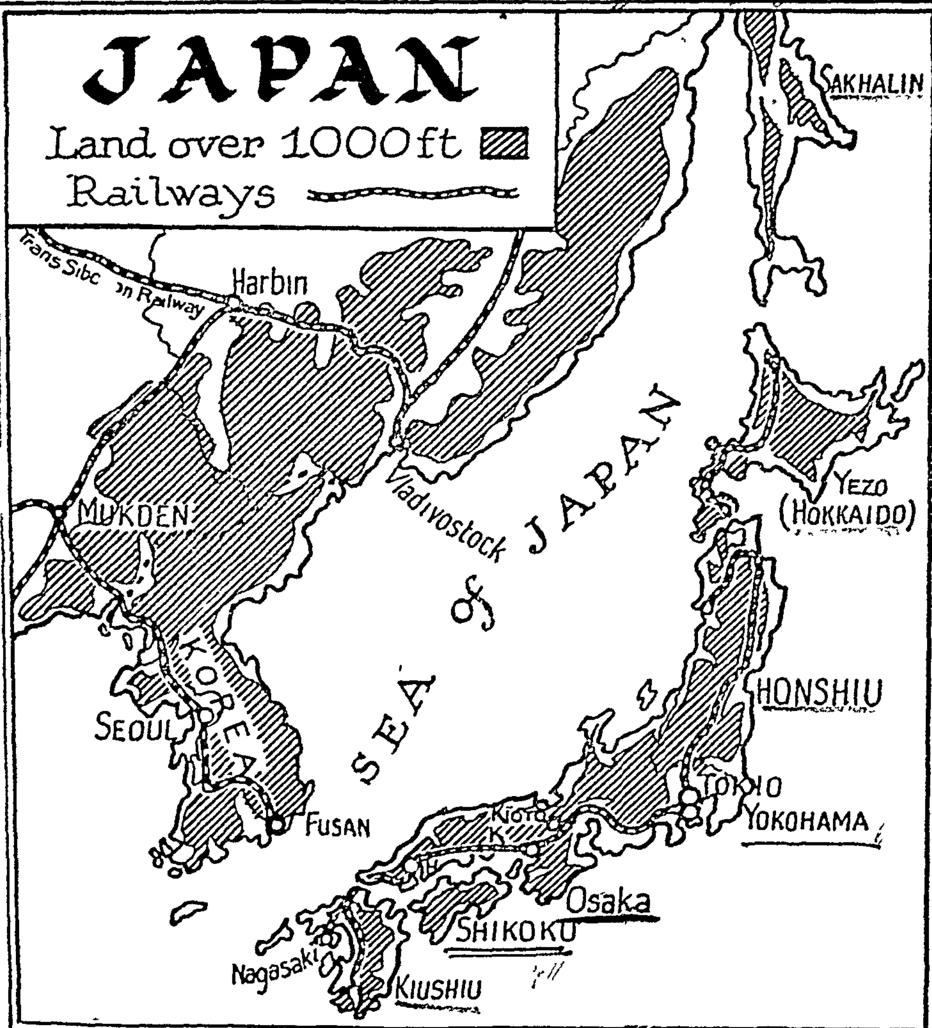
Japan consists of a string of islands off the coast of eastern Asia—east of North China. The most important of these islands are *Honshiu*, *Shikoku* and *Hokkaido* (or Yezo); but there are more than 1500 islands altogether. The Japanese Empire is very near Japan, and consists chiefly of the peninsula of *Korea*, on the mainland opposite Japan, and the island of *Formosa* opposite the coast of south-east China.

Japan has often been called "The British Isles of the East." Let us see how true this saying is. The Japanese islands lie off the mainland of Asia, while the British Isles lie off the mainland of Europe. The population of Japan is very heavy for its size. The Japanese people are also a hard-working, alert people, and to-day they are considered one of the great nations of the world.

Climate.—But, although Japan is like Britain in some respects, it is also very different in others. First its climate is different, and more varied. The atlas shows that, while our own islands reach from 60° to 50° latitude from north to south, the Japanese Islands reach from 50° to 30°. Hence the Japanese lands are much nearer the Equator, and also must have a much larger range of climate than our own lands. Consequently, the southern half of Japan has a much hotter climate than the British Isles and the products vary accordingly.

Rainfall.—The British Isles lie in the path of the prevailing south-westerly winds that bring rain to them

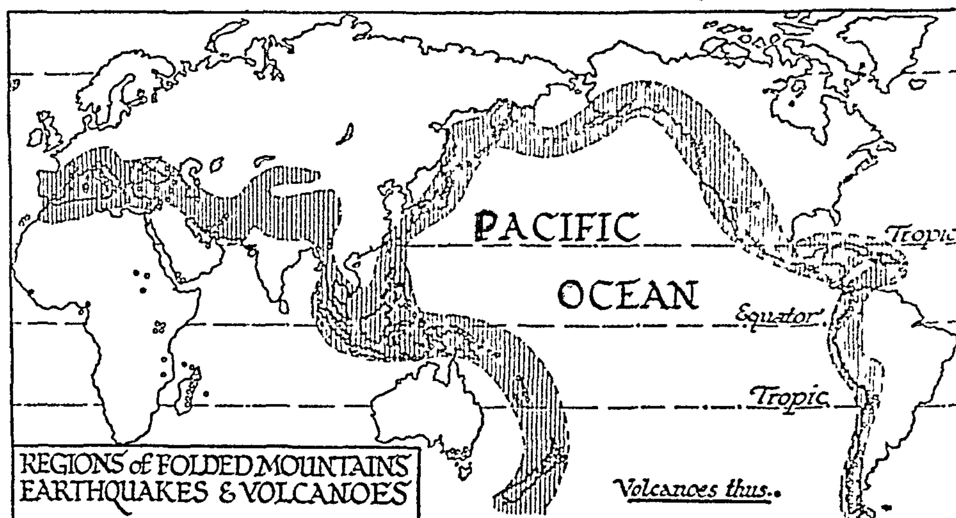
do this map in your Geog Exercise



The peninsula of Korea is the only part of the mainland belonging to Japan. Note, in the Japanese islands, (1) The lowlands. (2) The chief towns and ports. (3) The position of the railways.

all the year round; but Japan, being on the east of Eurasia lies in the region of the monsoons, which usually give rain at only one season.

In summer, the monsoons that blow across Japan from the Pacific Ocean come from the *south-east*, and hence are wet winds. Hence the south and eastern regions of Japan receive most of their rain in summer; also they receive more rain in summer than the western regions, because of the high mountains that run through the centre of all the Japanese Islands.



Notice the "Circle of Fire" round the Pacific Ocean.

But in winter, as in India and China, the monsoon changes direction and blows *outward* from the heart of the frozen continent, as the *north-west monsoon*. This wind brings icy weather to north-west Japan; but, in crossing the sea separating Japan from the mainland, it gathers up moisture. This moisture is deposited as snow or rain on the western lands of Japan.

Highlands and Lowlands.—The physical map shows that the Japanese lands are very mountainous. Less than one-fifth of the whole of Japan could be called lowland,

and on this small amount of lowland most of the Japanese live and work. These Japanese Islands, as well as the strings of islands that appear in curves or festoons off the east coast of Asia, were once joined to the mainland; but, during millions of years, earth disturbances have caused the land to sink, so that the present islands are really the remains of former mountains, only the tops of which now show their heads above the seas.

Volcanoes and Earthquakes.—The result of the folding up of the earth's surface in this region, and the forming of these festoon lands of the Pacific into great land heights and sea depths, is that there are many weaknesses in the earth's crust in the whole of the coastal region of the Pacific. Consequently these festoon lands of the Pacific are one of the main regions of the world where earthquakes and volcanic eruptions are common. A similar thing occurs on the other side of the Pacific, along the western coasts of North and South America.

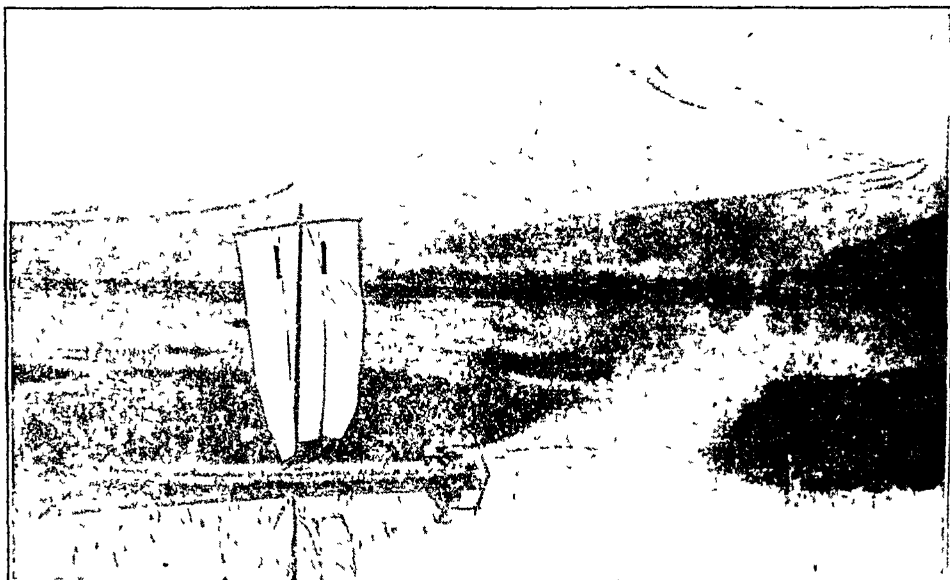
Frequent earth movements take place, sometimes on the sea bottom, at other times on the land; the result is felt in the damaging *tidal waves* that suddenly drown coastal regions, and in deadly *earthquakes*, both of which do an enormous amount of damage to life and property.

Volcanoes.—The whole of this festoon region of the Pacific is also dotted with volcanoes, some now extinct but many active. The map opposite shows some of these volcanoes, and how this "ring of fire" encircles the Pacific Ocean.

Japan is a land of earthquakes and volcanoes, and millions of lives have been lost in the past through them. There are eighteen active volcanoes in Japan, and many

extinct ones remain to show the disturbances that must have occurred in the past.

The last great earthquake happened in 1923, causing the deaths of many thousands of people, the destruction of half of Tokyo the capital of Japan, and the almost total destruction of Yokohama the largest port.

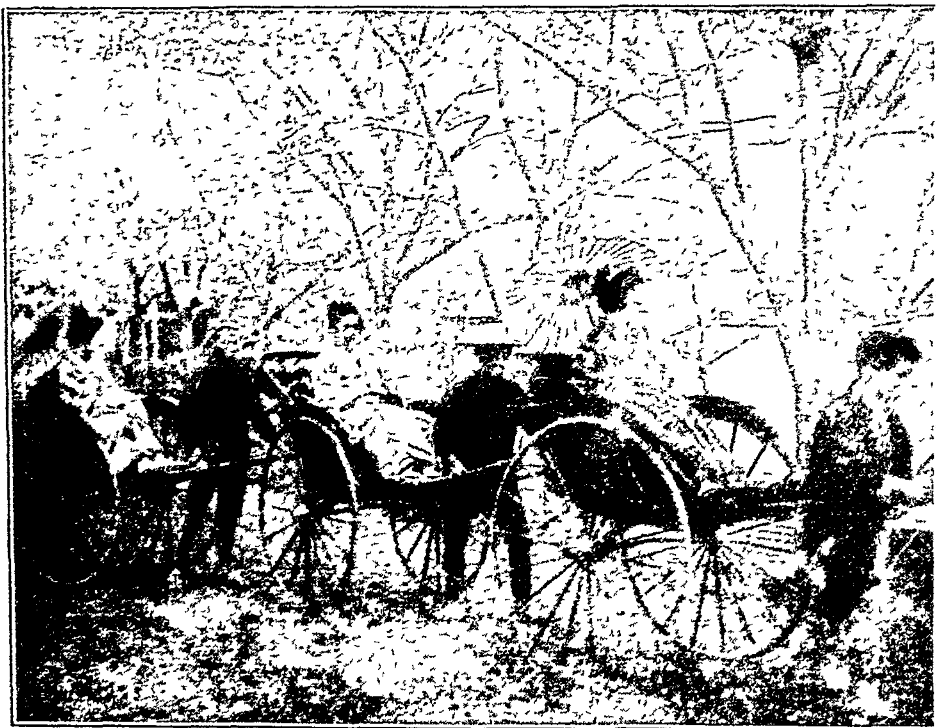


A Japanese fishing-boat, with a view of Fujiyama the volcano.

Houses.—Because of the frequency of earthquakes, the Japanese do not build very strong or lasting houses of stone or brick, as we do. The most solid thing about their houses is the roof. The remainder is made chiefly of *bamboo*, which grows easily and quickly in Japan and is consequently very cheap. Bamboo is one of the lightest of woods and can be easily replaced when destroyed.

Food.—*Rice* is the chief crop and the chief food of the people, and is cultivated in much the same way as in China.

Fish.—The waters surrounding the Japanese islands form one of the most valuable fishing grounds in the world, and the Japanese make full use of this gift of Nature. Rice and fish are the main items in the meals of



Japanese ladies going for a rickshaw ride at Blossom Time.

the Japanese, just as meat and bread and butter are the chief in our own lands. 3)

The Japanese and Flowers.—Japan is a beautiful country, and the Japanese love beautiful things. When one reads accounts of life in Japan one is struck by the continual mention of beautiful flowers, which are much loved by the Japanese and cultivated everywhere. Many

of their holidays and feast days are in connection with delightful flowers, the opening of which is eagerly awaited. More cherry trees grow in Japan than in any other country, and the cherry blossom has always been a great favourite with the Japanese. It appears in spring, when most of the Japanese take a holiday to admire the beauty of its blossom that is seen almost everywhere—on the mountains, in the carefully planted public gardens, and in private gardens.

The cherry tree with its dainty blossom has been the subject of many poems and art work in Japan. To the Japanese it stands for everything that is beautiful, graceful, clean and good.

> "Should any one ask what is the spirit of Japan,
> To him I would show the mountain cherry blossoms
> Glittering in the morning sun."

1. Trace as large a map as possible of the Japanese Empire. Colour all the land over 1200 feet.

2. Write down some of the differences between the climate of Japan and that of the British Isles.

3. "A ring of fire encircles the Pacific Ocean." Say what this refers to. Mark the volcanoes on a blank map of the world.

* * * * * *

Collect pictures of the lands and lives of the Japanese. Try to obtain some Japanese postage stamps; often they have beautiful pictures on them. Try hard to get a Japanese Air-mail stamp.

XIX

JAPAN: II. JAPANESE FARMERS AND JAPANESE MANUFACTURERS

Agriculture.—It has been seen already that Japan is a very mountainous country, having only a small amount of low land. The map on page 147 shows the position of the more important lowlands, of which the Tokyo plain is the largest.

The high lands of most regions are covered with forests, from which valuable products such as camphor and lacquer are obtained. Nearly one half of Japan is forested.

Although the amount of low land is so small, yet the Japanese, like the Chinese, grow most of their food requirements. The population is very large for the size of the country, for there are about 65 million people living on the four main islands; and most of these live on the small amount of low land. Less than 50 million people live in the British Isles, the area of which is slightly smaller than that of Japan.

Rice Growing.—Although there is so little agricultural land in Japan, yet it is an agricultural country, with more than half of the families in Japan earning their livings on the land. Of this cultivated land *more than half is used for growing rice,* which is the main item in the food of the Japanese, as well as the chief crop. For thousands of years Japan has been called "the land blessed with growing rice." The heavy rainfall and the warm climate of the largest island and the land to the

Heavy Rain
Moderate Rain
Little Rain
Almost No Rain
Tropic of Cancer
Equator
Tropic of Capricorn

ANNUAL RAINFALL

Arctic Circle
Rain at all Seasons
Very Little Rain at any Season
Rain mainly in Summer
Rain mainly in Winter
Tropic of Cancer
Equator
Tropic of Capricorn

SEASONAL RAINFALL

south make these regions very suitable for rice-growing. As in China, the farms are small, and the work is consequently done mainly by hand or with very simple tools. By means of the hard work, skill, and great carefulness of the farmers, each farm is made to yield the largest possible crop.

Rice is an excellent crop for a country that has too many people and not much agricultural land, for it gives a larger crop per acre than wheat, and has a greater food value. But the rice-growers are usually very poor, and many add to their earnings by rearing silk-worms.

Silk-Worms and Raw Silk.—Japan is the world's greatest producer of raw silk. Raw silk is Japan's largest and most valuable export. The above facts seem to show that many people in Japan must earn their livings in producing raw silk; but most of the silk is produced as a part-time job by the men, women and children, in addition to their work in the fields. Let us see briefly how this is done.

You all know that real silk is obtained from a certain kind of caterpillar, usually called a silk-*worm*. This creature thrives on the leaves of the mulberry tree. The warm Japanese climate is very favourable to the growth of this tree.

In many districts of Japan silk-worms are reared very carefully in almost every house. A special room or shed is fitted with rows of wide shelves one above the other. When the eggs have been laid by the silk moths, they are placed in trays on these shelves, and the whole room is kept at a certain temperature. After nearly a year

the tiny eggs burst, each producing a tiny silk-worm less than one tenth of an inch long. These are fed on fresh mulberry leaves, of which they eat enormous quantities; consequently they grow so quickly that they are forced to shed their skins almost each week.



Japanese girls reeling silk from cocoons.

In about a month the silk-worm is full-grown, and is then almost three inches long. It has almost finished its life by this time, but, first, it does a very important work for the silk farmer. It begins to spin the silk thread that will be used later to make beautiful silk articles. It

spins this fine, silk thread round and round itself until it is completely changed into a *cocoon*.

When the cocoons are completed, they are roughly sorted, steamed in order to kill any life inside, and sold to the silk merchants. The silk merchants send them to their factories. There the silk is carefully unwound and *reeled* from the cocoons; and many wonderful machines gradually turn it into *skeins* of beautiful, glossy silk. Much of this raw silk is exported to other lands, especially to the United States of America.

Most of this valuable export is sent from the two large ports of Yokohama and Kobe.

Other Important Products.—Next to raw silk and silk fabrics the most valuable products exported from Japan are *cotton goods* of all kinds. Like Britain, Japan has to import all the raw cotton from other countries; the larger part comes from India and the U.S.A., in almost equal quantities.

The cotton industry is a very important one in Japan. Most of the clothes of the Japanese are made of cotton; hence there is a good home market. But Japan manufactures such enormous quantities of cotton goods that the greater part of them is exported to all parts of the world—especially to China, India, the Dutch East Indies and Egypt.

All these goods are manufactured in large factories, where just as up-to-date machinery is used as in the factories of our own cotton industry of Lancashire.

Japan also manufactures many other articles. Next to raw silk, silk goods, and cotton goods, the most important exports are glassware and pottery, paper,

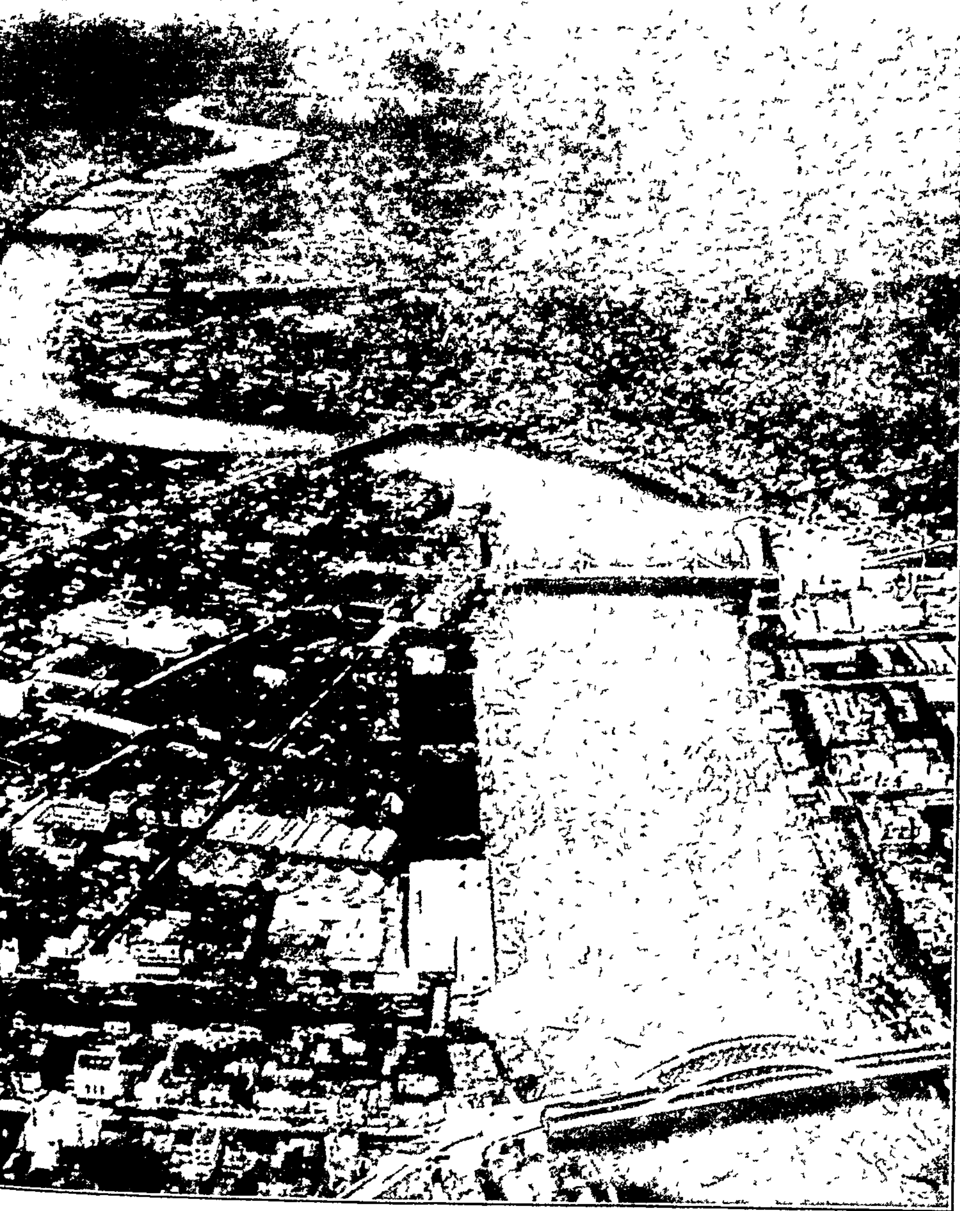
refined sugar (the raw sugar comes from Formosa), and timber products, including such things as toys and matches. 5)

Japan To-day.—During the last forty years Japan has become one of the great nations of the world. The Japanese are a clever race, and very eager to learn the best ways of doing things. They have learnt how to make goods by machinery, and to-day the people of the cities are engaged in all kinds of industries just as the people of Britain are. There is a fair amount of *coal* in the islands of Kyushu and Hokkaido, nearly a quarter of a million people being employed in coal-mining. However, Japan has very little iron, and is thus forced to import large quantities of iron, steel and machinery from other countries.

Japan to-day makes large quantities of woollen goods for her own people. Most of this wool is imported from Australia, for land is so valuable in Japan that very few sheep or cattle are reared.

Towns and Ports.—Because of the many islands and the irregularity of the coast, Japan has many excellent harbours and ports. The Inland Sea, that lies between the three islands of Honshiu, Shikoku, and Kyushu, might be called one huge harbour, forming a well-sheltered resting place for ships and boats of all kinds.

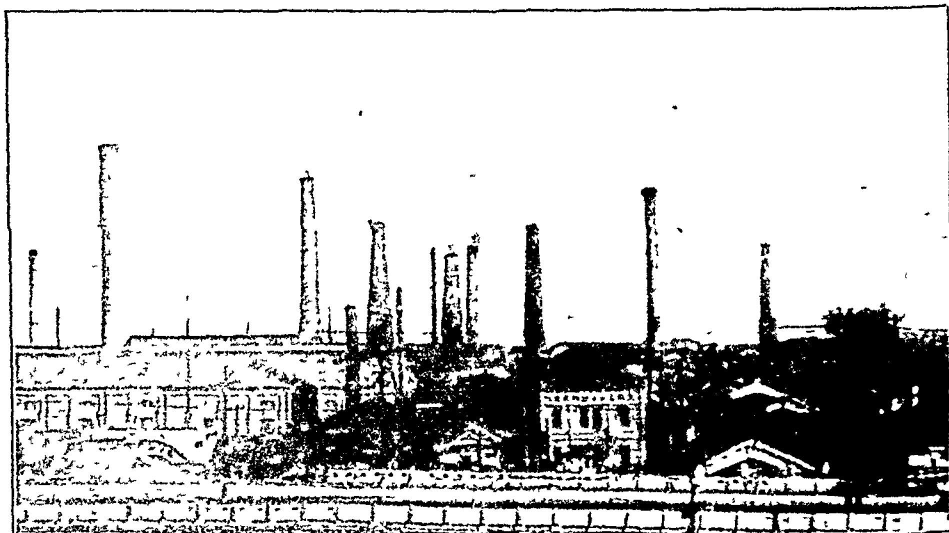
(6 *Osaka* is the 2nd largest city and port in Japan. It is the eleventh largest city in the world, and has a population of more than two million people. (Note that Birmingham, the second largest town in England, has less than one million, while Manchester has three quarters of a million.) Osaka could be called the Manchester of



AN AIR VIEW OF TOKIO—the Tokio Plain.
Note the flatness of the scenery, the windings of the river, the ships and the bridges ; also the houses, shops and factories packed closely together

Japan, for it produces more cotton goods than any other town. But Osaka, as a port, is only the third port in importance.

Kobe and Yokohama.—Since 1923, when Yokohama was destroyed by the terrible earthquake, the trade of Kobe has become so important that it is now the first port of Japan, Yokohama taking second place. The



FACTORIES AT OSAKA—the Manchester of Japan.

main exports of these two ports are raw silk and cotton goods, while raw cotton, raw wool, iron, and sugar are important imports.

Note that Kobe is only 20 miles from Osaka, and that Yokohama is only 19 miles from Tokyo the capital of Japan.

Tokyo, the capital, is the ~~second~~ third largest city, having a population of nearly [redacted] 7 millions.

Railways serve all the important towns of Japan;

their position along the coast lands can be seen from the map on page 147.)

1. On the physical map drawn in the last chapter mark Tokyo, Yokohama, Osaka, Nagasaki, Fusan. Mark the railways in red ink.

2. Find out all you can about rice-growing in Japan. Then write an account of it—from seed-time to harvest—telling exactly the work done by the Japanese rice-growers.

3. Find out how a Japanese house is made. Why is it made of such cheap and light material?

4. Write the life history of a scarf made of real silk. Start from the tiny egg that will hatch into a silk-worm.

5. Write down the names of four large towns or ports in Japan, and write a few lines about each.

* * * * * *

How many pictures have you of Japan and the Japanese? Try to obtain some of volcanoes, rice fields, Japanese houses, blossom time, the silk industry, and Japanese workers.

When you have read the two chapters on Japan, and have done the exercises, arrange your pictures and postage stamps to illustrate your work. The result will be a short *Picture Geography Book of Japan*.

XX

RUSSIAN LANDS: TUNDRA, FOREST AND STEPPE

Your atlas shows that Russia is the largest country in Europe, and that it is joined to its Asiatic possessions, which occupy nearly all the land north of China.

The Russian lands form one large mass that spreads from Europe to the Pacific Ocean, and is situated



entirely in north temperate regions. To-day the name given to these lands is the United States of Soviet Russia.

Looking more closely at these Russian lands, with the aid of a physical map, we see that they consist mainly of an enormous lowland, sloping gradually to the Arctic

Ocean, and bordered to the south and the north-east by high plateau and mountain.

From the high land to the south—in the heart of Asia—mighty rivers flow to the north. Notice particularly the courses of the Ob, Yenesei, and Lena. These rivers look as if they would make excellent routes, and could act as the main outlets for the produce of the forests and steppe lands of the interior; *but*, unfortunately, the climate of the northern part of this region is so severe that the lower parts of the rivers and their mouths are frozen for eight months of the year. Also, during the early spring seasons, when the rivers are receiving much water from the melting snows of the mountains in the south, the frozen mouths act as dams, with the result that the land is flooded for miles in all directions.

Our studies of the climate and Natural Vegetation belts of the northern half of Eurasia taught us that these belts ran roughly from west to east, from ocean to ocean, if we leave out the western coast lands and the eastern coast lands. From north to south these belts were :—

1. The Tundra of the far north. 2. The Coniferous Forest belt. 3. The Grassy Steppe Lands. 4. The Semi-Desert and Desert Lands of the heart of Asia.

The Northern Tundra Lands of Siberia.—The lands bordering the Arctic Ocean are Tundra lands because of the cold climate. They are so far north that, during the short, warm summer, there is almost perpetual day; while during the hard winter months, daylight lasts for only a few hours, the land is covered with snow, and everything is frozen. The north-east part of this tundra region is the coldest spot on the earth.

The soil of the tundra is always frozen—even the summer heat thaws only to about two feet below the surface. Hence no plants with long roots can grow.

The description of the Canadian Tundra given in the book of *The Americas*, could be given almost as truthfully to the Tundra of the Old World. Notice on a map of the world how the Tundra region encircles the North Polar Regions, lying just south of the regions that have perpetual ice (Ice-cap regions).

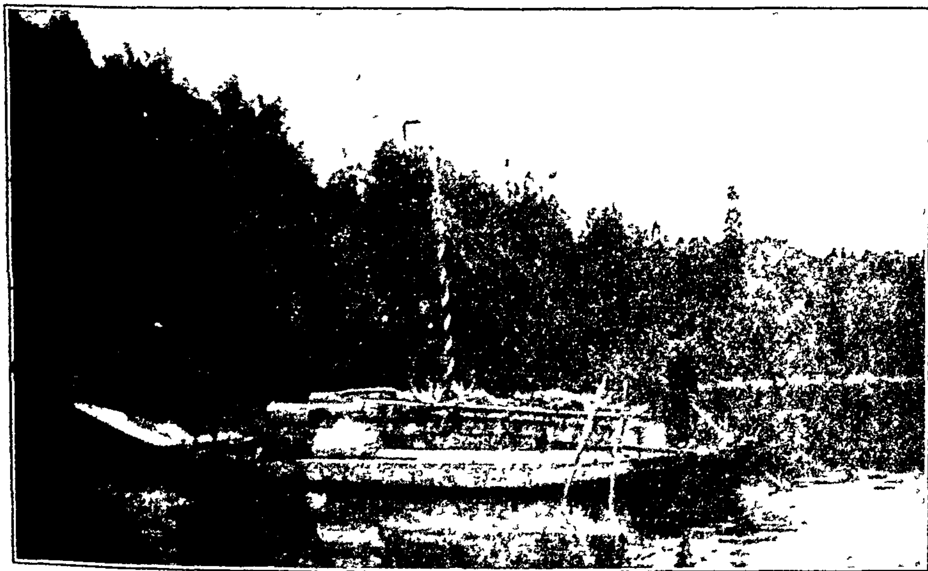
The Peoples of the Siberian Tundra.—This type of region controls very closely the lives of the peoples who live there. They must be hunters and fishermen. who wander from place to place in search of their livelihoods. The *Laplanders* of Europe and the *Samoyedes and Ostyaks* of Siberia are three such nomad peoples, whose lives are a great struggle against Nature.

The most valuable animal to the dwellers in the Asiatic Tundra is the reindeer. This hardy animal provides most of the wants of man in these regions—food, clothing and shelter. It is also the means of transport in winter. Large herds of reindeer are sometimes kept by the richer Samoyedes. The snow cannot lie very thickly in the Tundra, otherwise the reindeer would be unable to obtain the moss on which they mainly live.

Do not forget that, in the short summer, the Tundra is no longer a frozen desert. It is covered with a bright carpet of flowers of all kinds and colours, and swarms with millions of insects, such as the mosquito, which make life very unbearable for man and animals. But these long, hot days are few, and the land soon loses its colourfulness as the days get shorter and colder.

Very few people live in these lonely lands in which man can grow nothing of value.

As one travels farther inland, away from the Arctic coast, the country is more bearable climatically and less barren looking. At first, very short shrubs appear here and there, and eventually scattered trees. Still farther south the true Siberian forest appears. It is a similar



Ostyak Hunters and Fishermen with their Houseboat on the River Yenesei. What time of the year is it?

type of forest to the coniferous forests in Canada, although in Europe and Asia it is called the *taiga*.

Life in the Cold Forests of Siberia.—In *The Americas*, you received a very good idea of what life is like in the Cold Forests of Canada. Try to recall what you learnt about the lumbering industry, the timber rafts on the rivers, timber mills worked by the water-power of the rivers, paper-making in the paper mills, as

well as the hunting of fur-bearing animals by the trappers working for the Hudson Bay Company.

What a difference is found in the Asiatic part of the taiga forest of the Old World! While lumbering and its allied industries are most certainly very important in the taiga forest of Western Europe, yet the timber of the taiga belt of Asia has hardly been touched so far. But there is a vast store of valuable timber there—of pines and firs, spruces and larches, poplars and birches.

Canada can use its *south flowing* rivers in spring and summer for transporting the timber from the forests. But, as we have seen, the Siberian rivers, although ever so much larger than the Canadian ones, are of very little value in this way. Not only are there enormous floods, but the rivers flow to the icy waters of the Arctic, which must always be out of touch with the rest of the world.

The Peoples of the Forest.—We have seen that most of the more temperate forests of the world, such as those of the British Isles, the U.S.A. and of China, have been cleared, so that food can be grown for the ever-increasing population. But in the northern forests of Canada, Europe, and Asia the winters are too long and cold, and the summers are too short for food crops to grow. Consequently very few people live in the taiga, which stretches for hundreds of miles without a break, and which is even unexplored in some parts.

Fur Hunting.—The few people who live in the taiga region live on the borders of the dark forest, and seldom travel far into its depths. They are mainly hunters of the valuable fur-bearing animals that live there. The Siberian forests are the largest fur-hunting lands in the

world. The skins of the sable, ermine, silver fox, and black fox are the most valuable, but those of bears, wolves and squirrels are very common.

These furs are sold to the traders who regularly visit the hunting settlements. The hunters are not Russians, but *Samoyedes* or *Ostyaks* who do their hunting mainly in winter, when travel is easiest over the frozen land and swamps and rivers. These hunters leave their families in log huts built on the borders of the forest, while they enter the forest in search of the native animals that are so well protected against the weather. The rivers are the best routes into, and out of, the forest in winter.

This mighty forest is many, many miles deep. Towards the slightly warmer south the trees begin to change in their appearance; more and more broad-leaved trees are to be found, such as oaks, poplars, and birches.

1. Trace a map of the Russian Lands in Europe and Asia, putting in all the rivers marked in the Atlas. Colour yellow all land over 1200 feet.

2. On the above map mark the regions of Tundra, Coniferous Forests and Steppe.

3. Point out why the Canadian Coniferous Forests are so valuable, while those of Siberia are at present almost unused.

4. Write a few words on the life of the peoples of the Tundra, and of the Coniferous Forests.

5. Make a list of the names of the fur-bearing animals that live in the northern forests of Asia. Try to obtain pictures of these animals.

XXI

THE STEPPE LANDS OF ASIA. THE TRANS-SIBERIAN RAILWAY

South of the wide belt of taiga that spreads across Europe and Asia is a region that is warmer in summer,



WHEAT FARMERS OF THE RUSSIAN STEPPES.

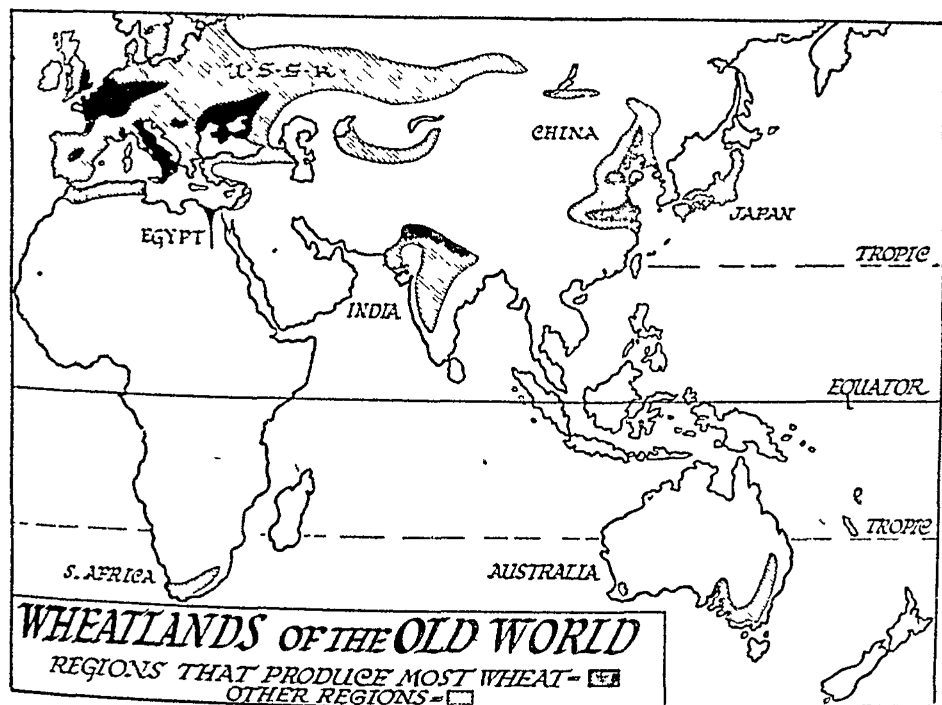
and which receives some rain then, although not enough to allow forests to grow.

This is a region of temperate grassland similar to the prairies of Canada. The usual name given to this type of region in the Old World is *the Steppe.*

The southern borders of the Northern Forest, when cleared, make very good agricultural land. And the steppe land just south of the forest—as the forest thins

out—makes fair agricultural land, for this is the part of the steppe that receives most rain.

The Farmers of the Russian Steppe.—The region of the steppes—both in Europe and Asia—is one of the most valuable to the Russians. It produces most of



WHEATLANDS OF THE OLD WORLD
REGIONS THAT PRODUCE MOST WHEAT
OTHER REGIONS

their food, either in the form of wheat on the more fertile regions, or of meat on the dryer steppes.

Russian Wheat Lands.—The best farming region of the whole of Russia is situated just north of the Black Sea. Enormous crops of wheat are grown on the rich soil of what is known as the "black earth region." This soil occupies an enormous plain that reaches from the Black Sea into the heart of Russian Asia.

During the last 50 years, more and more Russians have been settling on the Asiatic Steppe, where agriculture is possible—namely on the borders of forest and steppe in Western Siberia. Parts of the forest have been cleared, and, from the rich earth of these and the neighbouring steppe lands, valuable crops are obtained.

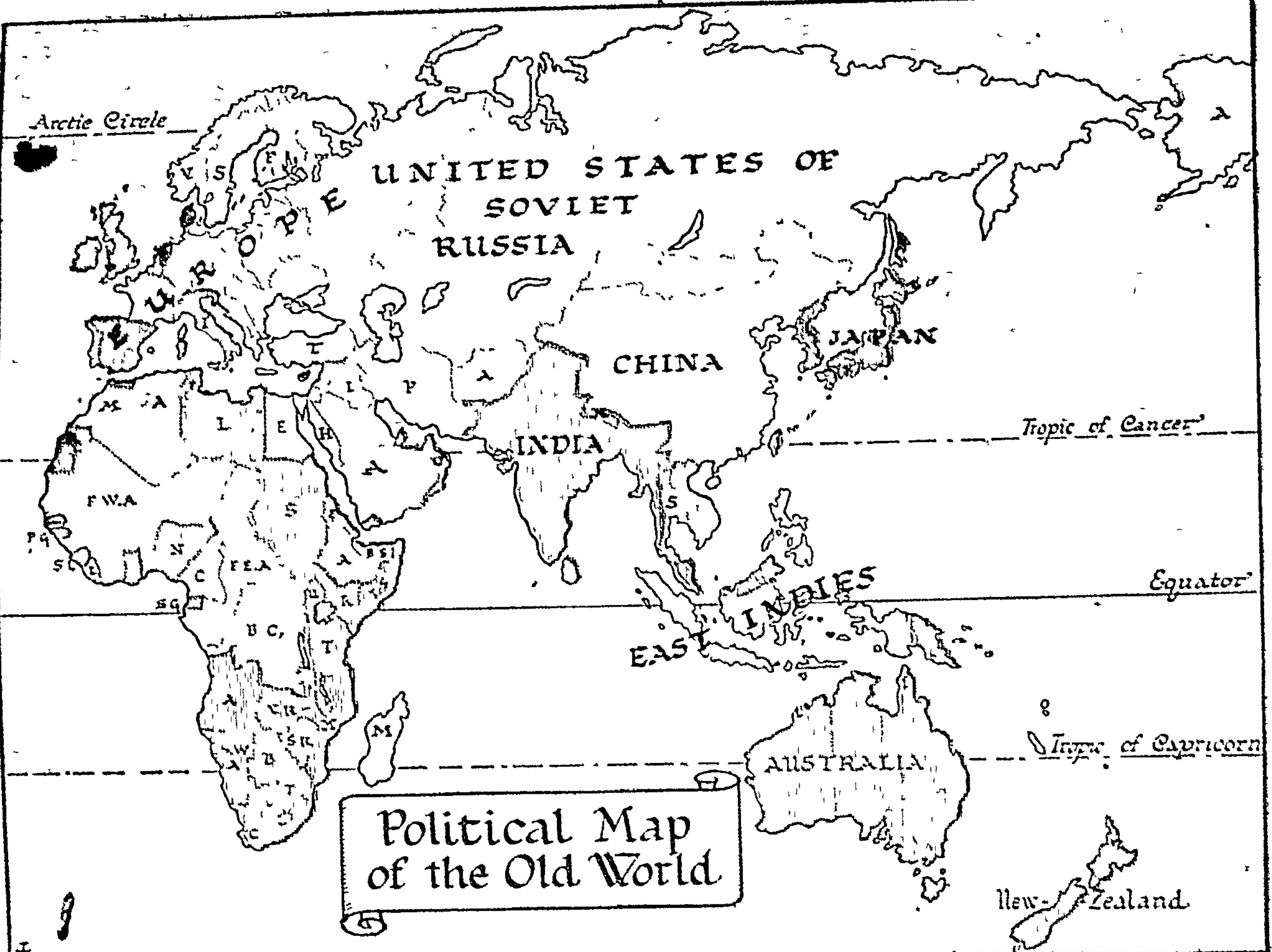
The Siberian railway, which runs right across Asia from West to East, has encouraged more Russians to settle on these regions, because the railway enables them to send their crops to the European markets.

The Steppe Lands of Asia.—The real steppe is grassland—absolutely treeless. In Central Asia this steppe land stretches for hundreds of miles, like the Canadian prairie and the Argentine pampa. But it is by no means as level as the latter plains, which are flat as far as the eye can see. The steppes of Asia have a more varied scenery, often with low hills, broad valleys and undulating plains.

As this region is far inland—in the heart of the continent, and sometimes thousands of miles from the sea—the climate is extreme, being very hot in summer, and bitterly cold in winter; and, in summer, although the days are very hot, the nights are usually very cold.

In winter, the steppes are always covered with a mantle of snow, and swept by terrible storms. The snow begins to melt in April, as the sun gets higher in the sky, and the moisture causes plant life of all kinds to awaken.

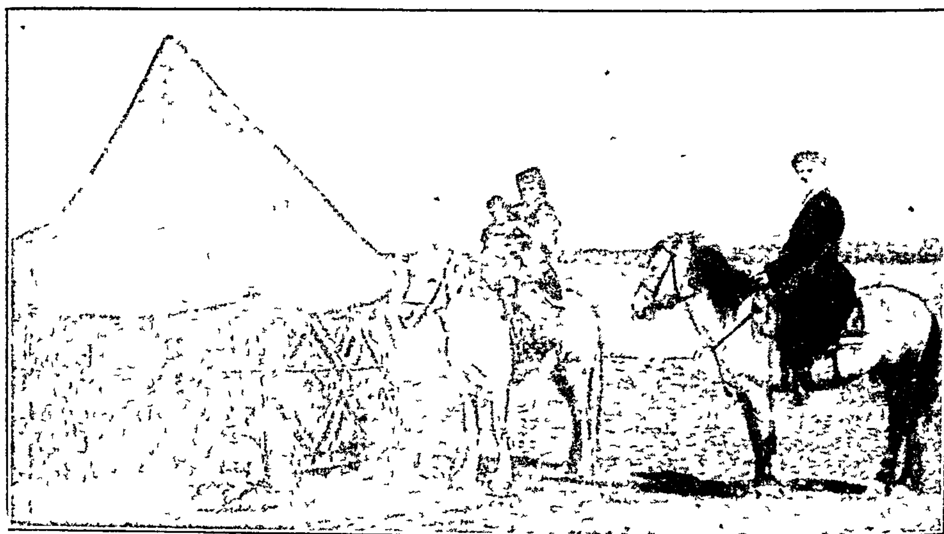
The early summer rains, although scanty, and the rapidly warming days cause the grass to grow afresh, and thousands of wild flowers, large and small, and of



Political Map of the Old World

many colours, burst into life—the whole forming a thick carpet of luxuriant plant life.

But, as the days become longer and the sun gets hotter, no more rain falls, and the grass and flowers soon wilter and wither. By mid-summer, the steppe land is a dry, thirsty looking place—even the grass being burnt and shrivelled up.



Kirghiz Horsemen of the Steppe-lands of Asia.

The Pastoral Lands and Nomads of the Steppes.—The steppes are the natural grazing grounds for all kinds of domesticated animals, particularly horses, camels, sheep, goats, and cattle. These animals belong to the nomad inhabitants of the steppes, who have always been herdsmen and horsemen.

The *Kirghiz* and the *Kalmucks* are two such tribes of nomad herdsmen. They depend on their herds for almost everything. Their food is mainly milk, butter,

cheese and flesh. Their clothing is made from the skins or hair of the animals. Even their summer homes, called "yurts" are made from skins or felt.

In winter, there is little food left on the steppe for the flocks and herds, and even this is covered with snow. Hence, during the summer months, the nomad must store up food for the use of his animals during the bitterly cold winter.

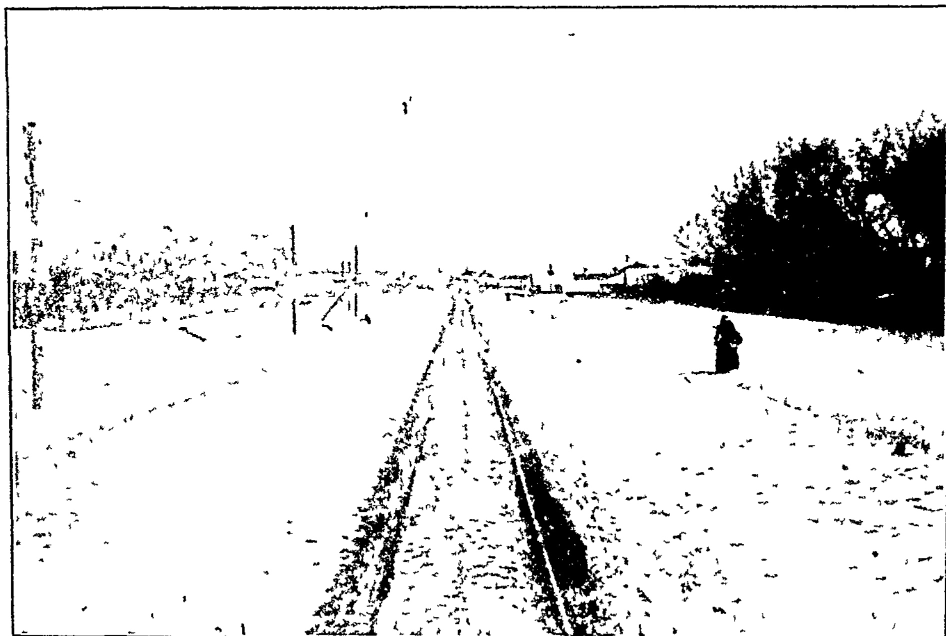
In autumn, he returns to his winter hut, which was built strong and warm enough to withstand the hard winter. Shelter must also be provided for some of the animals. So the nomad cannot be a real nomad in winter. In this hut he and his family must live until winter is passed, although these herdsmen and horsemen of the steppes do not like settling for very long.

The Trans-Siberian Railway.—We have already seen that the vast region of Russia and Siberia suffers from bad communications. The natural routes—the waterways—flow towards the frozen Arctic. There are very few roads, and these are not good. The real routes in such a land should be the rivers, and are the rivers; but, as we have seen, these cannot always be used, and lead finally to nowhere of importance.

We noticed in Canada and the U.S.A. that the railways were built across the continent before the land was settled, and that these railways encouraged settlers to follow them, and open up the land in their neighbourhood. A similar thing is happening in Siberia. A railway has been gradually built right across Asia from west to east—from Moscow in Europe to the Pacific Coast.

5390 miles away. This *Trans-Siberian Railway* is the longest in the world.

Look at the map on p. 162, of the northern half of Europe and Asia, and notice the positions and names of the towns marked. You will see immediately that most of the towns are inland, and form a line across the two



THE TRANS-SIBERIAN RAILWAY NEARING OMSK

continents from west to east. Notice particularly Moscow in Russia, Omsk, Tomsk, Irkutsk, Chita, Harbin and Vladivostock. Notice which towns are on a river. Trace the branches from Harbin that go south to Port Arthur, an ice-free port. Most of these towns are growing rapidly to-day. Motor-cars, buses, trams, large buildings, theatres, cinemas and wireless, are all used in much the same way as in the towns of our

own lands. Yet how isolated are these towns of Siberia, in comparison with those of the British Isles!

Now glance at the population map of Asia, and notice that the slight population of Asiatic Russia is distributed in the neighbourhood of the Trans-Siberian railway.

The most important goods transported by this railway are the products of the cultivated lands—wheat, rye, oats and dairy produce—and the animal products of the natural steppe lands that lie near the railway. In return for these products, manufactured goods are imported to these distant lands from Europe in the far west, or from China and Japan in the far east.

1. On a blank map of Eurasia mark the following towns and ports:—Leningrad, Moscow, Omsk, Tomsk, Irkutsk, Chita, Vladivostock, Harbin, Port Arthur. Put in the Trans-Siberian railway in red ink. Colour the Steppe lands yellow.

2. Why do many Russian emigrants go to the Russian Steppe lands of Asia? What do they produce? Are they nomads, or settled *farmers*?

3. Why are the peoples of the dryer steppe lands nomad herdsmen and shepherds? Give a list of the animals they rear, and the products obtained.

4. Describe carefully the natural steppe lands (a) in summer, (b) in winter. Give an account of a day's work in the life of a Kirghiz and his family, at each of these seasons.

* * * * * *

Try to obtain pictures and postage stamps of Russian lands. The Russian Air-mail stamps are very interesting.

XXII

THE LAND OF THE FIVE SEAS: THE SOUTH-WEST BORDERLANDS

One of the most interesting regions of the Old World, in history as well as in geography, is that part of Asia that joins together Europe, Africa and Asia. Look carefully at your atlas and notice the following facts:—

1. that the Dardanelles, the Bosphorus and the eastern half of the Black Sea form the water boundary between Europe and south-west Asia;
2. that the Caucasus mountains, between the Black Sea and the Caspian Sea, act as the land boundary between south-east Europe and south-west Asia. (Between Russia and Turkey.);
3. that the isthmus of Suez, joining the Mediterranean Sea to the Red Sea, is the boundary between Africa and Asia;
4. that the only large rivers flowing through this part of Asia are the Tigris and Euphrates, which join before flowing into the Persian Gulf.

The map also shows the very peculiar shape of this part of Asia enclosed by the above boundaries, and how seas reach far into the land on many sides. In this way the region consists chiefly of the two large peninsulas of Asia Minor (Turkey) jutting to the west, and Arabia to the South. Between these two peninsulas lie the lands known as Palestine, Syria, and Iraq (Mesopotamia).

The usual name for all these lands, enclosed by the five seas mentioned above, is *The Land of the Five Seas*.

The Old Testament tells us something of the lives of the people and of the great empires that existed in these lands in the past. Both ancient and more recent history tell how these regions have been the scene of many campaigns and wars between the peoples of Europe, Africa and Asia. The study of the map suggests that one reason for this is their position *as a borderland* lying between the wealthier lands of Europe, Egypt and India. The Land of the Five Seas forms the most direct land route between Egypt and Mesopotamia, Egypt and India, between Europe and Mesopotamia, Europe and India, and between Egypt and south-east Europe.

Let us see more closely the various kinds of lands that are to be found in this important region.

Highlands and Lowlands.—The atlas shows that by far the larger portion of this region is mountain and plateau. The largest region of lowland is on the east, namely the valley of the Tigris and Euphrates. The only other valuable regions of lowland are on the coasts of each of the five seas.

Climate and Vegetation.—The maps of temperatures, winds and rainfall, seasonal rainfall and vegetation give a general idea of the climate and the resulting vegetation of the Land of the Five Seas.

The temperature maps show that the coastal lands are very hot in summer and warm in winter. The climate becomes more extreme the farther inland one goes.

The rainfall occurs mainly in winter, and is very scanty except on the coastal regions. Consequently the heart of the plateau of Asia Minor is dry steppe land, while much of the region between the mountains of

Syria and the Euphrates is a sandy desert. Arabia consists of a vast plateau with a steep slope facing the Red Sea and sloping gradually towards the east. On the whole of this great plateau rain seldom falls; hence, except for narrow coastal strips and a number of oases. Arabia is mainly a hot desert similar to the Sahara.

The Coastal Lands.—The coastal lands of the Black Sea, the Caspian Sea and the Mediterranean Sea, and the mountain slopes facing them receive a fair rainfall. Hence the mountain slopes are forested in most regions, while the coast lands grow the usual Mediterranean crops such as the olive, wheat and fruits. Smyrna is the important port on the Mediterranean coast of Asia Minor.

The Plateaux.—The dryness of the plateau lands for most of the year is a great contrast to the coastal lands in every way. Where there is not actual desert, as in the Arabian and Syrian deserts, the vegetation is chiefly grass, except in the few well-watered valleys. Consequently the plateau of Asia Minor is very similar in climate and appearance to the steppes of Russia.

The Work of the Peoples and the Products.—From what has been said above it will be easily understood that most of the peoples in the various regions of the Lands of the Five Seas will earn their livings in one of three ways:—(1) as *farmers* of the coast lands and fertile river valleys; (2) as *shepherds and herdsmen* of the grassy plateaux; (3) as *nomad traders* in the desert lands—moving from oasis to oasis.

History tells us that the settled farmers of the fertile lowlands have often been raided by the more warlike horsemen and camel-men of the plateaux and deserts.

The herdsmen and shepherds are nomads who move from pasture to pasture with their herds of camels, horses, sheep and goats. The chief products of these plateaux are wool and goats' hair (Angora goats), and articles such as rugs, carpets, blankets and leather goods that can be made from the products of these animals.

Mesopotamia.—Apart from the coast lands of the Mediterranean, Black and Caspian Seas, most of the other regions where agriculture occurs may be considered as *oases* in more or less desert regions.

The greatest example of this is Mesopotamia. The word Mesopotamia means the *land between the rivers*. It is really the long and broad oasis obtained from the waters of the Tigris and Euphrates. Hence Mesopotamia is very similar to Egypt, for its whole life depends on the waters and floods of the above two rivers. Rain seldom falls for more than fourteen days during the whole year.

Look at the map, noticing where the rivers rise in the Armenian highlands, and the direction of their courses with regard to each other. These two rivers bring down an enormous amount of fertile silt from the mountains. During the centuries this silt has been deposited in the lower valleys, thus forming between them the broad plain of Mesopotamia.

To-day the country is at peace, and irrigation schemes are being developed—but slowly, because the people are not very wealthy. But the flood-lands, and those that can be given water, produce excellent crops, especially of dates. Rice, wheat and cotton are also grown. Basra exports more dates than any other port in the world. (Study the large aerial view on pages 90 and 91.)

The most fertile part of Mesopotamia is the region where the two rivers approach most closely to each other. At this favourable spot the wonderful "fairy tale" city of Babylon existed in the past, and there to-day stands *Baghdad.* Mosul, also on the Tigris, is the centre of important oil-fields.

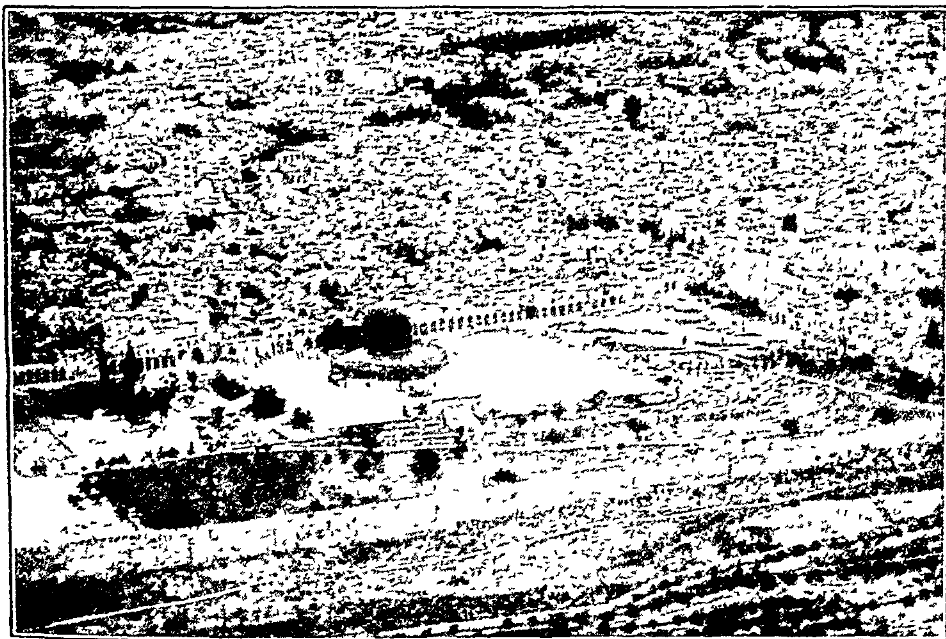
Routes of the Land of the Five Seas.—Although this region is the borderland between Europe and Asia, and Africa and Asia, and the meeting ground of many races and civilisations, yet good natural routes to and from the smaller regions, and from the continents, are few and indirect. Our studies above have shown us that this is a region of rugged mountains in the north and east, while the central regions consist of vast tracts of desert.

But routes there must be, for the Land of the Five Seas has always had a considerable traffic crossing it, either of armies or of traders. What were the routes used by them?

From Egypt to Mesopotamia and India the route used was through the desert "wilderness" of the Suez peninsula to Palestine, "the land flowing with milk and honey." Crossing the Jordan, near the Sea of Galilee, the route passed east towards *Damascus,* the famous centre of routes and trade. From Damascus, the route continued due east across the desert, towards the Euphrates and Tigris, and ended at the important trading centre and meeting-place of routes—*Baghdad.* From there, easy routes led down the river valleys to the Persian Gulf, from where India was easily reached by sea.

From Europe to Mesopotamia and India, the best land route was very difficult. Starting from Constantinople,

any route had to cross the very difficult country of Asia Minor, with its many ranges of high mountains. The Taurus mountains in the south-east were a great barrier, but the Cilician Gates provided a route out of them, leading to the fertile Cilician Plains at the foot of the moun-



AN AIR-VIEW OF JERUSALEM.
Note the Mosque in the foreground.

tains. On this plain stands the important town of *Adana*, where routes meet from north, south, east and west. Look carefully at the map, noticing first the route from Constantinople to Adana, and then the country to be covered from there to Baghdad, on the Tigris. On this route lies *Aleppo*. Aleppo is a good example of a place being important because of its remarkable position, which

you should notice carefully from a physical map. It stands midway between the plateau of Asia Minor on the north, and the Lebanon Mountains on the south-east; and between the sea and where the Euphrates comes closest to the Mediterranean coast. (Note that ships could save the difficult land journey across Asia Minor by going to Alexandretta, the port of Aleppo). From Aleppo the route went due east to the Euphrates. Usually it continued farther east, until the Tigris was reached at *Mosul* (Nineveh in the past). From Mosul the obvious route was down the Tigris, and so to Baghdad, the Persian Gulf and India.

Routes To-day: Rail, Motor and Air Routes.—The above routes were crossed by wealthy caravans that regularly undertook the journey across the mountain, plateau and desert, and which exchanged their goods at the famous meeting-places of these caravans, particularly at Aleppo, Damascus and Baghdad. Caravans still carry on regular trade by these routes that bring Europe, Egypt and Mesopotamia and India in touch with each other.

But, to-day, these journeys are done much more quickly by means of the railways that were built at great expense. Look carefully at the railway map, taking first the route from Europe to the Persian Gulf, and then the route from Egypt. It seems as if the same routes are used to-day by the railway.

From Europe the rail winds across the mountains and plateau of Asia Minor, through the Cilician Gates by means of tunnels, and so to *Adana*. Then it goes to Aleppo. From *Aleppo*, an important railway junction to-day, it crosses the Euphrates and continues towards

Mosul on the Tigris. But it has not reached Mosul yet; there is a gap of many miles that has to be crossed by other means. However, a railway has also been built from the *Baghdad* end, so that to-day the railway runs from Baghdad across to the Euphrates and then south to *Basra*, the port of Mesopotamia. A large part of the railway from Baghdad to Mosul has also been built. When this railway is completed, it will be possible to go by rail all the way from London to the Persian Gulf, excepting the crossing of the Straits of Dover and the Bosphorus.

Note that the rail route from Egypt to Mesopotamia is by way of Damascus and Aleppo, and so has the same gaps, which have to be crossed by other means.

Routes from Damascus.—Damascus is still one of the most important trading places and meeting-places of routes, and many caravans still arrive from across the desert. Railways have made it even more important, as they go north to Aleppo, west to Beirut its port, south to Egypt by way of the coastal plain, and south to Arabia by way of the plateau.

To the east the Syrian desert stretches for more than five hundred miles. For centuries caravan routes have crossed this region on their way to Baghdad, but the wearisome journey takes many days. During recent years a regular motor-car service has been running that takes not only passengers, but goods as well. The journey from Beirut to Baghdad can now be done in twenty-four hours.

Air Routes provide the quickest method of travelling to-day. The aeroplane is particularly valuable in crossing regions that have no roads and no railways. The

Syrian desert is one of these regions. To-day, aeroplanes regularly cross it, on their voyages between the Mediterranean Sea and India, by way of Mesopotamia. Baghdad is a very important air centre. The *Cairo-Baghdad air route* crosses this region by way of Gaza and Amman.

From Baghdad the air route is continued to Basra, then to Karachi the important Indian air port, and so to Delhi the capital of India.

"Truly it seems more like magic than reality to ascend from London on Saturday and to be in Alexandria on the following Monday evening; to be at Gaza on Tuesday morning; at Baghdad on Tuesday evening: at Basra on Wednesday; and in India on Friday."

1. On a blank map of the "Land of the Five Seas" mark all the seas and rivers. Colour yellow all the land over 1200 feet. Mark the railways in red. Mark also the motor routes and air routes.

2. What are the three chief ways of earning a living in the Land of the Five Seas? Say how each of these depends on the region in which the people live.

3. Trace a map of Asia Minor, Palestine and Syria, marking the River Jordan, the Red Sea, and all the large towns and ports. Draw the railways with red ink.

* * * * * *

Write to some of the European airway companies for pamphlets, maps and pictures of their air services to Egypt, Mesopotamia, and India.

XXIII

AUSTRALIA: I. REGIONS, CLIMATES AND NATURAL VEGETATION OF AUSTRALIA

Australia is a great contrast to the thickly populated monsoon lands of Asia (India, China and Japan). Although it is the largest island in the world, being twenty-five times larger than the British Isles, it has a very small population—just over six million people, which is much smaller than the population of Greater London. Most of the six million people in Australia live in the towns; hence vast areas of Australia are unpopulated.

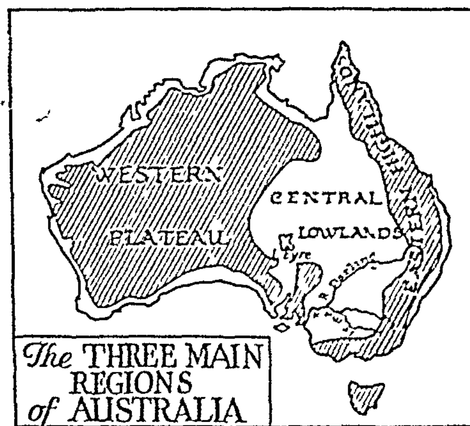


Notice the short fore-legs and the strong tail.

Highlands and Lowlands. Look carefully at the physical map, and notice the general position of the highlands and the lowlands. It will be noticed that these highlands and lowlands divide Australia into three main regions, as follows :—

1. The highest lands form a region of mountains running along almost the whole length of the east and

south-east coasts, and approaching the coast very closely for much of this length. These mountains have various names in different parts, such as the Great Dividing Range, Blue Mountains, Australian Alps, etc., but for our purpose we shall consider them as one long mass of high land. The usual name for this eastern region of high land is *The Eastern Highlands*.



The THREE MAIN REGIONS of AUSTRALIA

This mass of mountain presents a steep face to the east, and was a very difficult barrier for the earliest settlers to cross. When at last brave explorers succeeded in finding a route across this barrier, they found that the mountains sloped more gradually towards the west, until they seemed to dip themselves under a vast plain that spread for hundreds of miles.

2. The western half of Australia consists of a broad plateau about 2000 feet above sea-level, and bordered by coastal lowlands on the north, west and south. This region is usually called *The Western Plateau*.

3. Between the Eastern Highlands and the Western Plateau lies a vast region of lowland. In the southern half of these *Central Plains* lie the famous sheeplands of Australia, where millions of sheep live on the natural grasslands of the region.

☞ Notice that the largest rivers run through these Central Plains; the most important river is the *Murray*, with

its valuable tributaries the *Darling*, *Lachlan* and *Murrumbidgee*. This river with its tributaries rises in the Eastern Highlands, flows west and south-west and drains a very large portion of the southern half of the Central Plains.

As well as the three main regions above, there are lowlands of varying widths to be found on most parts of the coast. The most important of these have always been those on the east coast and south-east coast, from just north of Brisbane to just west of Adelaide. These were also the first regions to be colonised, and to-day they hold most of the population, and four out of the five largest towns, of Australia.

Climate.—The climate of Australia makes a very interesting study, and, after our studies of Eurasia, is rather easy to work out and to understand.

Australia is an enormous island—a continent in itself; consequently it will contain a variety of climates. But its climates will not have the extreme range possessed by those of the Americas and Asia, mainly because it does not reach into very high latitudes.

The first most important key to the climate of Australia is the *Tropic of Capricorn*. The map shows that this passes almost through the centre of Australia.

Now look at the temperature maps for winter and summer on page 102. (Remember that January is summer time, while July is winter time in the Southern Hemisphere.)

Look carefully at Australia and notice for each season:—1. The hottest regions. 2. The coolest regions. 3. The regions where the temperatures are nearest to those of the British Isles in the same season.

By the above study it is also seen :—

1. That much of Australia is very hot all the year round.

2. That the south-eastern and southern coasts are the more temperate lands.

3. That the regions of Tasmania and the neighbouring coastal lands of Victoria have temperatures nearest to those of the British Isles, but hotter in summer and much milder in winter.

Which regions will be the most suitable for the white man to work in—the northerly regions or the southerly regions ?

Winds and Rainfall.—1. By studying the general wind system of the Old World hemisphere it is seen that Australia lies in the path of the *South-east Trade Winds.* As these winds come from across the Pacific Ocean they will bring moisture to the east and south-east regions. Notice that the Eastern Highlands bordering the eastern coastal regions will cause the winds to rise ; this will cool them so that they will be forced to drop their moisture on the eastern and south-eastern coast lands.

But, as the winds continue farther inland, they will become dryer and dryer. For this reason the centre will receive very little rain, while the western and northern regions will receive no rain from the South-east Trade winds.

2. *In winter*, however, the South-east Trades move farther north, so that the south-west and southern coast-lands then lie in the path of the Westerly winds, which are rain-bearing winds. Consequently these regions receive their rain in winter, and thus have a

climate similar to that of the Mediterranean Lands—namely winter rain and summer drought—for they receive very little rain from the South-east Trades in summer. (Note also that the winter and summer temperatures of these south-west and southern coast-lands of Australia are similar to those of the Mediterranean Lands of Europe and North Africa.)

3. Let us now pay more attention to the northern coast lands. In winter, the usual winds are the South-east Trades which bring no rain to northern Australia. *In summer*, however, the vast central heart of Australia becomes so exceedingly hot that the air over these central regions is forced to rise. Heavier and cooler air flows in strongly from the northern seas. This movement of air forms the usual wind for northern Australia in summer; it is a *north-west wind*, and brings heavy rain to the northern coasts.

The seasonal change of the direction of the wind is very similar to that which occurs over the Monsoon Lands of south and south-east Asia. The cause of the change is also similar. Hence it can be said that northern Australia is visited by monsoons, which give it a *monsoon climate* of a wet and a dry season.

Seasonal Rainfall and Natural Vegetation.—The reasons for the distribution of Natural Vegetation in Australia are much easier to understand than were those for the vegetation of Asia. The rainfall maps for summer (January) and winter (July) divide Australia into four main regions, according to the amount of rainfall received and the season at which the rain usually occurs. (Study the maps on page 119 and page 154.)

Each of these rainfall regions produces a special type of natural vegetation, as follows :—

1. *The regions with rain all the year round are forested.* These regions form a belt along the southern half of eastern Australia, and include Tasmania and the neighbouring coastlands of Victoria. The forest differs in type as one travels from north to south. The northern part of the region will have a more tropical type of forest; the southern regions will have a more temperate type of forest : while the middle regions will have a sub-tropical type. The eucalyptus tree is the usual type found in these regions : there are many different varieties, from a very tall tree to small bushes in the dryer regions.

2. *The regions with rain mainly in winter.*—These regions of the south-west tip, South Australia and south-west Victoria have a climate similar to that of the lands round the Mediterranean Sea. They have also—except on the coast lands with very heavy rainfall—a similar kind of vegetation of the *evergreen tree and shrub* type. On the coast lands of the south-west region the rainfall is very heavy, but gradually diminishes as one goes farther inland. Thick forests of *kauri* and *jarrah* occur on the coast. These are very valuable to West Australia. The forests gradually thin out, and the trees become shorter and more shrublike, as the land becomes dryer. Eventually desert-like conditions prevail as one approaches the rainless regions.

3. *The regions with rain mainly in summer* occupy the northern third of Australia and the Central Plains. These are chiefly grasslands, except in the coast-lands of the extreme north, where the heavy monsoon rain

Describe the climate of Australia.

produces the monsoon type of forest, similar to that growing in India, Malaya and south-east Asia. South of this border of monsoon forest the trees gradually thin out as the rainfall diminishes, until they are replaced by the tall grass which forms typical *Savannah Land*, similar to that of Africa, south of the Congo Forest.

As these grasslands reach farther south the cooler climate affects the vegetation in such a way that the Tropical Grasslands gradually become more and more of the Temperate type, so that the grasslands of the Murray-Darling Plains are warm *steppe lands* rather than Savannah lands.

(4) *The regions with hardly any rain.*—These regions are *desert and semi-desert*, and occupy a large part of Central and West Australia,—from the lowlands round Lake Eyre to the western coast. The natural vegetation, where there is any, consists of *salt-bush* (good sheep fodder), *mulga* and *mallee* scrub, and, in the heart of the desert, the *spinifex* with its sword-like leaves.

1. On a blank map of Australia colour yellow all the land over 1200 feet. Put in the important rivers and name them. Name the three main regions of Australia.

2. Take two blank maps of Australia. On one colour the rainfall regions for January and on the other colour the rainfall regions for July. In each map put in the winds occurring at the particular season.

3. Take two blank maps of Australia. Make one of them into a map of the seasonal rainfall. On the other draw the regions of Natural Vegetation, and colour them. Note the connection between the two.

XXIV

AUSTRALIA: II. SHEEP LANDS, CATTLE LANDS, WHEAT LANDS, FRUIT LANDS. LANDS WITH MINERALS

To-day, the eastern and south-eastern regions of Australia are easily the most important of Australia. Nearly all the population lives there, and the most important towns are there. The people living in these regions earn their livings in various ways, but we already know enough geography to be able to say that the way they earn their livings will depend much on the type of region in which they live. Let us study the chief ways in which Australians earn their livings.

The Sheep Lands and Shepherds of the Murray-Darling Plains.—The first settlers found no domesticated animals in Australia, and hardly any animals suitable for food. A few cattle, horses, sheep and pigs and other creatures suitable for food were brought by sailing ship from England.

To-day, Australia has more sheep than any other country, and most of its wealth has been obtained, and is still obtained, from sheep. Hence many people must earn their livings in connection with the rearing of sheep and the marketing of the products obtained from them.

From our study of the sheep lands in *Our Own Lands*, we learnt that sheep are most likely to be kept on the dryer lands, where there is a sufficient supply of grass that is not too long. Where are such lands in Australia? Our study of the natural vegetation showed us that there

Where are the sheeplands of Australia

is an enormous area of natural grassland and scrub in Australia, on the west of the Eastern Highlands. The most important sheep-lands of Australia occupy the southern and more temperate regions of these grasslands —chiefly the area that is drained by the Murray-Darling river system. These Murray-Darling Plains are a wonderful feeding ground for sheep.



AUSTRALIAN SHEEP
Where are they being driven to?

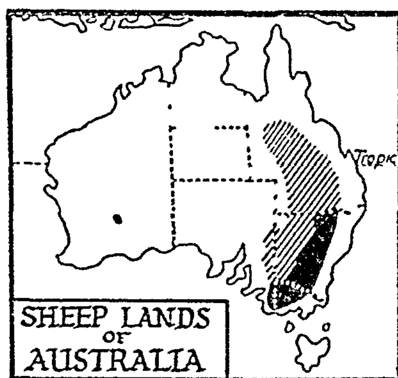
Once the early settlers found routes across the Eastern Highlands, they discovered enormous natural pastures on the west of the mountains, such as the famous Darling Downs of New South Wales. These pastures were first used for rearing sheep because sheep could produce *wool*, and this could be easily exported overseas. Hence only the best wool-producing sheep were kept; these sheep were the famous *merino* sheep from Spain.

As the sheep industry grew, more and more pasture

was required, and so the flocks were driven farther and farther out until the natural grasslands were reached.

The most valuable sheep lands are in New South Wales. just north of the Murray River. This southern region of New South Wales—known as the *Riverina* District—is the most famous sheep-land in the whole world.

Shearing time is perhaps the busiest time on the sheep farm. With thousands of sheep to be sheared at a certain time, everyone is kept hard at work; most of the sheep to-day are sheared by electrical machinery. The fleeces are sorted and carefully packed into large bales, each weighing about 350 lb. The bales of wool are sent by cart or lorry to the nearest railway station, and then by rail to the nearest seaport.



Notice that the nearest ports to the Riverina district are *Sydney* for the eastern portions, and *Melbourne* for the southern portion. Farther north, for the sheep lands of Queensland, *Brisbane* will be the port.

Wool Production.—Australia produces more wool than any other country or continent in the world. It produces more than a quarter of the world's wool supply. Of this enormous Australian production, *New South Wales* produces nearly one half, *Queensland* produces about one-fifth, while *Victoria* produces about one-sixth.

Most of this enormous wool production is sold to other countries to be turned into woollen cloth and woollen

goods. Britain buys nearly half of it, in order to keep the woollen factories of Yorkshire supplied with wool. France is the next largest buyer, and Japan the third.

During recent years Australia has exported each year about 700 million lb. of wool whose value is about sixty-three million pounds.



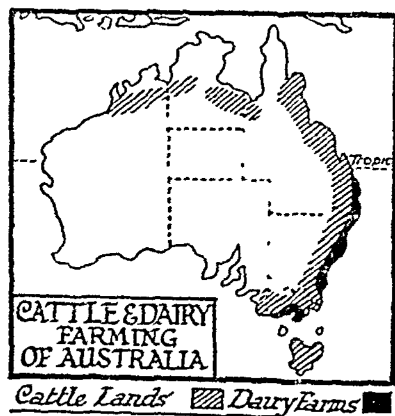
Sacks of wool awaiting transport from the shearing sheds.

Mutton and Lamb.—Sheep were reared mainly for wool in Australia because it would have been useless for the early settlers to have reared them for meat. The meat could not have been sold.

But since the invention of the refrigerator ship, by means of which meat can be kept in good condition for a very long time, some sheep farmers have grown *sheep for meat*. The result is that Australia now exports frozen

mutton and lamb. But it is interesting to know that the value of the wool exported is nearly thirty times as much as the mutton and lamb exported.

The Cattle Lands and Cattle Farmers.—"We should be especially interested in a strange cargo that reached Australia before the close of the eighteenth century. One bull, four cows, one calf, and twelve pigs were put ashore in Farm Cove, where the Sydney Botanic Gardens now stand.



Cattle Lands ▨ Dairy Farms ■

". . . They were the first animals of their kind to make a home in Australia. They were the pioneers of the fourteen million cattle (in 1950)—two and a half million of which are dairy herds—flourishing in Australia to-day."

The map shows that the cattle lands occupy to-day—

1. The wet lowlands of the eastern and south-eastern coastal belt.
2. The hot Savannah Lands of the north of Australia.

On these cattle lands the cattle are produced either for meat or for dairy produce, according to the region. The cattle lands of the more temperate regions—namely those of the south of Queensland, New South Wales and Victoria—are the most suitable for cattle reared for dairy produce.

Cattle for Meat.—There are about fourteen million cattle in Australia; Queensland contains nearly half of these. About one-sixth of the total cattle in Australia

AN AIR VIEW OF A HOMESTEAD IN VICTORIA (AUSTRALIA).

Victoria is one of the most advanced and one of the wealthiest of the Australian States. Although the smallest of the states of the mainland, it has more than a quarter of the total population of Australia.

The maps and the reading matter on Australia in this book give some idea of its importance with regard to the main industries of Australia—sheep, wheat, dairy produce, gold and fruit.

The photograph, taken from the air, shows a model homestead in agricultural Victoria.

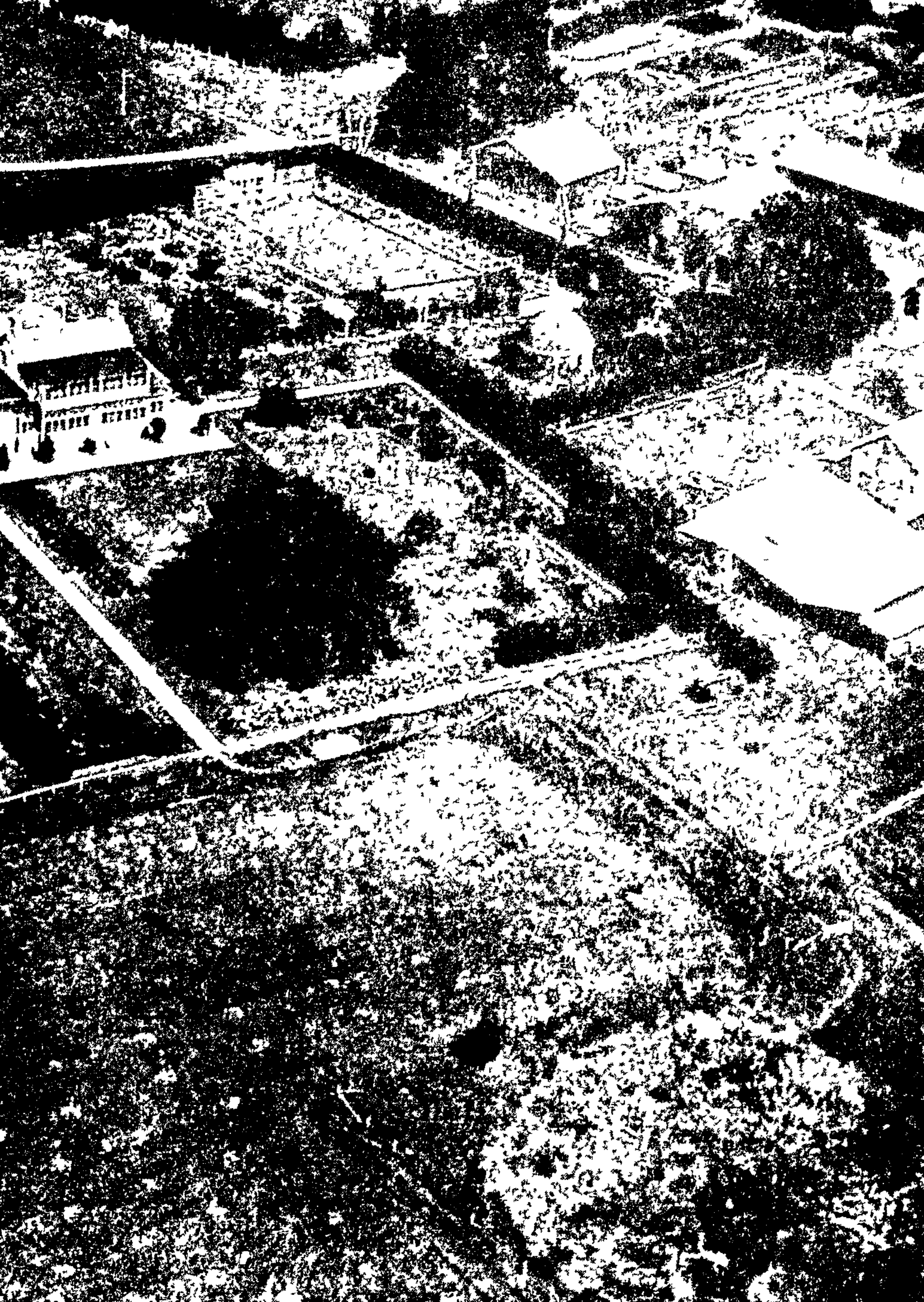
Study the picture carefully, noticing the following features in the order given :—

1. The large well-built house, with its well-kept garden.
2. The outbuildings next to the house.
3. The other buildings. Try to find out the uses of each.
4. The various fields fenced with wire.
5. The crops of each of these fields.
6. The road leading to and from the homestead.
7. How the water supply is obtained.

Does this picture give the idea of a "natural" scene, or of a "man-made" scene ?

After studying this scene read again Chapter XXIV on Australia and its Sheep lands, Cattle lands, Wheat lands, Fruit lands and its Lands with Minerals.

This photograph is reproduced by the courtesy of the High Commissioner, Australia.



are dairy cows, the remainder being reared for meat. Most of the meat is consumed by the Australians, although some is exported in the form of frozen or canned beef.

Cattle for Dairy Produce.—More important to Australia, in some ways, than the meat producing cattle are the dairy cows that live on the sunny pastures of the more temperate cattle-lands of Australia.

Each year they produce forty million pounds worth of dairy produce, and form the third most important land industry of Australia—the pastoral industry coming first and the agricultural industry second.

Butter is the most valuable of the dairy products exported, much of it going to Our Own Lands. "New Zealand is the only Empire country that sends us larger supplies of butter than we get from Australia."

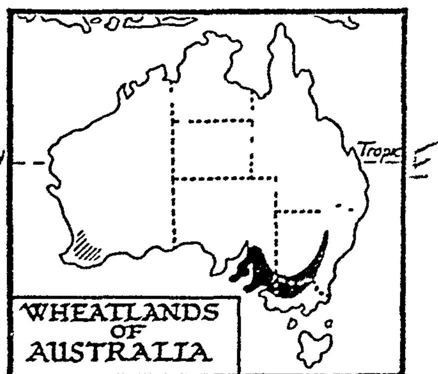
Next to butter, *condensed milk* is the most valuable dairy produce exported from the dairy lands. *Cheese* is also produced, but most of this is consumed in Australia.

New South Wales, Victoria and Queensland—in the order named—are the three most important states producing dairy produce. Of course, the manufacture of butter, cheese, and condensed milk is now done mainly by machinery in factories on, or near, the dairy lands.

The Wheat Lands and Wheat Farmers.—The earliest settlers found very few plants suitable for food-growing in Australia. Hence they were forced to try to grow their own crops. Naturally, the first thing they tried to grow was wheat. To-day, wheat occupies two-thirds of all the cultivated land in Australia, and is easily the largest crop. The larger part of the crop is exported to countries with a much greater population.

Britain buys more than any other country, Italy and Japan coming next.

Now, which regions of Australia are most suited for wheat growing? From what we have learnt about wheat growing in England and North America we can say that the coast lands of the east and south-east will be too wet, the northern lands too hot, while the heart of Australia will be too dry.



Hence we come to the regions that are most suited for growing wheat, namely the temperate lands just west of the Eastern Highlands—in New South Wales and Victoria. The lands with the Mediterranean type of climate—namely the south-west tip of Australia, and the south-eastern region of South Australia—will also be suitable, as there will be a dry summer for ripening the wheat.

The map of the wheat-lands of Australia shows each of the above regions very clearly.

The best wheat lands are on the long tableland just west of the southern half of the Eastern Highlands. "It was on these lands that the squatters made their early homes and built up the great merino industry."

During the twentieth century many of the former sheep-lands of the south-east of Australia have been gradually taken over by wheat farmers. The sheep farmer moves farther west to the drier lands; but the increasing dryness puts a limit to this movement.

The wheat farmer, however, does not grow wheat only. He usually uses part of his land for sheep, or perhaps for a herd of dairy cows as well.

Work on an Australian Wheat Farm.—The land is ploughed immediately after the harvest, which comes in the early summer (January). After ploughing, by means of many furrowed motor ploughs, the land is left fallow, to receive the benefit of the hot, summer sun. In autumn the wheat is sown, and soon begins to grow. It continues to grow through the winter months which are always mild. By early summer it is ripe and ready for harvest.

The harvesting is done by the modern combined-harvester, which, "driven round and round the standing wheat, gathers, threshes, winnows, and bags the grain."

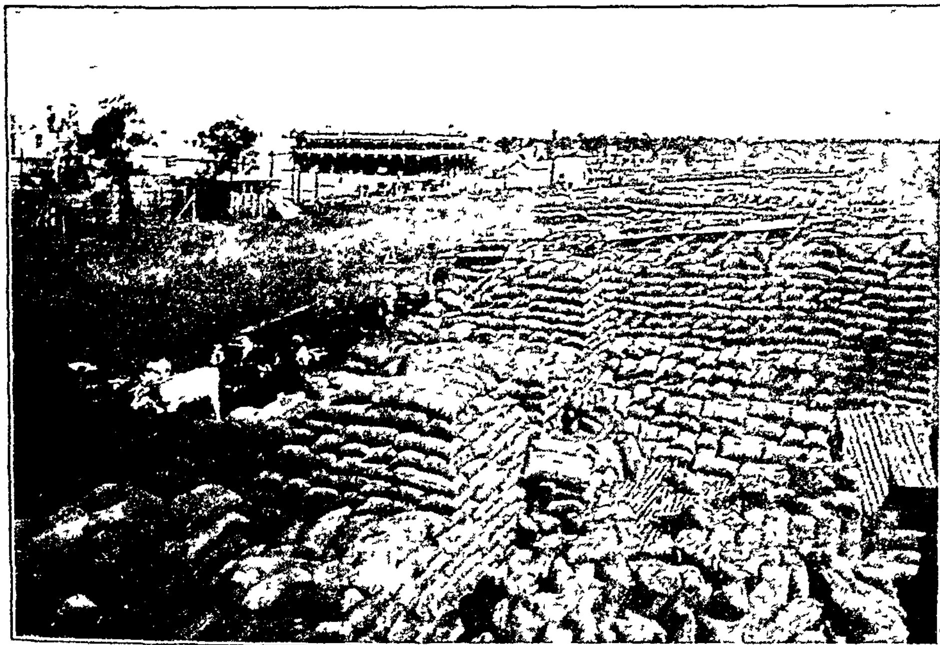
As soon as the wheat is harvested, it is carted to the nearest railway station, which is usually not many miles away. There are no elevators as in Canada and the U.S.A.

Fruit Farmers of the Mediterranean Lands.—Some of the regions of the extreme south of Australia are very suitable for fruit-growing of many kinds. This industry is becoming more and more important, and Australian fruits and Australian wines are quite common in the shops of the British Isles.

Grapes and Wine.—The regions having the Mediterranean type of climate are naturally particularly suitable for the growing of most fruits that grow easily in Mediterranean Lands. Of such fruits the grape is the most valuable in Australia to-day, and occupies more acres than all the other fruits grown.

The states having the largest number of vineyards are Victoria in the first place, and South Australia in the

second place. New South Wales, although not a country with the typical Mediterranean type of climate, comes third, and West Australia fourth. Most of these fruit lands need irrigation. Tasmania alone has no vineyards (but grows excellent apples).



Sacks of Wheat at a Railway Station in the Wheat lands of Australia.

Grapes are grown in Australia for three purposes:—(1) For wine making, (2) for eating, (3) for drying, in order to form such dried fruits as raisins, currants and sultanas.

Raisins and Currants.—These are easily the most valuable export from the Australian vineyards. Raisins and currants are simply dried grapes.—" Currants, with their black, wrinkled skins covering their sugar-sweet

Australian Irrigation Schemes.—The most important waterway of Australia is the Murray, with its tributaries the Lachlan, Darling and Murrumbidgee. The Australians are tapping this valuable water supply, so that it can make more fertile the surrounding lands, many parts of which suffer through lack of water at certain seasons.



A FRUIT ORCHARD IN VICTORIA.

1. In the vine-growing districts that spread across New South Wales, Victoria, and South Australia, water from the Murray is pumped by steam engine, and run into channels lined with concrete. Small sluice gates allow the precious water from these channels to run into smaller channels which lead to the vineyards.

Mildura and *Renmark* are two important fruit-growing centres that benefit by this scheme.

2. At *Burrinjuck*, a great dam nearly 200 feet high has been built across the Murrumbidgee. By this means

the water is stored in a huge lake. This dam irrigates a large area of agricultural land, and irrigates even the vineyards of New South Wales 100 miles from the dam.

3. The latest and largest irrigation scheme in Australia is the building of a large dam across the Murray near *Albury*. This will irrigate an enormous region, and will store up the heavy winter floods. During the dry summer months the water will be allowed to pass to where it is required. Many vineyards will benefit by this scheme.

Artesian Basins.—You are beginning to understand that lack of water is the great trouble in many regions of Australia.

The Murray-Darling river system will be used to its utmost capacity, by means of irrigation schemes, to supply water to the neighbouring regions. But many parts of Australia have no such rivers, and are desert or almost desert through lack of rain. Can these regions obtain water in any way?

Yes, some of them can. In some regions it is possible to obtain water from under the ground by sinking wells. Such regions are known as Artesian Basins.

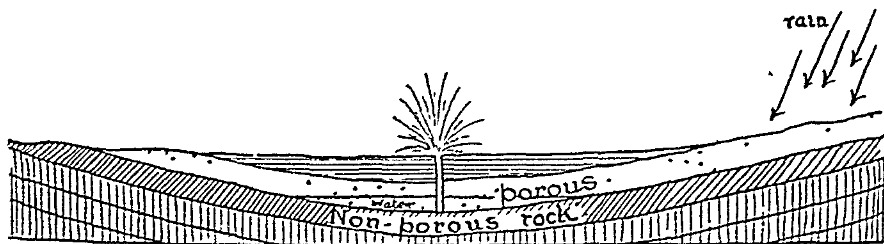
Often, as soon as the well is bored, the water gushes out and continues to do so, owing to the natural pressure underground.

The diagram opposite explains how these basins contain water, although they may be in the heart of a desert.

In many parts of the *Central Plains* of Australia, where water is scarce, artesian wells have been made; the water is carefully tapped, and is used as required by the farmers, cattle farmers or sheep farmers. 21|52

The Discovery of Gold and the Gold Rush.—In 1851, gold was discovered at Bathurst in New South Wales, by a man named Hargraves. The news of the finding of gold quickly spread, and there was a mad rush to Bathurst. People from near and far gave up their usual work, and joined in the eager search for rapid wealth.

In the same year gold was discovered in Victoria at *Ballarat*, and the same rush occurred.



A diagram showing how an Artesian Basin and an Artesian Well are formed

The news quickly spread outside Australia, and from all parts of the world came men with the gold lust in their eyes. The rocks were searched for nuggets, and the gravels from the streams washed in tin pans, by thousands of eager men.

Some were lucky and made wonderful fortunes, but most of the half million of men, who had come to make their fortunes quickly, were unsuccessful. The wiser of these gave up the hopeless search, and began to realise that good money was to be made in supplying the miners with food and other necessary articles, all of which brought high prices at that time.

Others, having spent everything in their gamble for

gold, knew that they could not return to their own land, and decided to take up land in the new country, and become farmers and shepherds. In this way the "gold rush" brought to Australia what she was in urgent need of, namely more men. Later these men became good settlers, who helped to open up the vast riches that were lying, not in the gold fields, but in the climate and soil. These were waiting for the sheep farmer, the cattle farmer, the wheat farmer and the fruit grower, ready to give valuable produce in return for skilful work.

Gold Mining To-day.—The gold fields of New South Wales and Victoria still produce gold, but the gold is not obtained by men with tin pans, nor by men searching for nuggets. As in South Africa, the gold there to-day can only be obtained from the rocks by expensive machinery.

In 1891, 1892 and 1893 fresh discoveries of gold were made in Western Australia at *Coolgardie* and *Kalgoorlie.* To-day, these regions are the richest gold-fields in Australia, producing about three-quarters of the Australian gold production. The map shows that these regions of Western Australia are in the heart of the great desert. Great sufferings were undergone by the first miners in this region.

To-day the mines are owned by rich companies, which can afford the expensive machinery necessary to get the gold from the rocks. As there is so little water in the region, pipes of 33 inches diameter have been laid across the desert for 400 miles to the south-west coast. Fresh water from the Helena river is pumped all that distance by means of nine pumping stations — for the gold

TWO METHODS OF IRRIGATION IN AUSTRALIA

An Artesian Well (see diagram on page 207).

Burrinjuck Dam—built across the Murrumbidgee.

district is more than 1300 feet above sea-level. You can guess what a large sum of money this must have cost.

On the average, for the last ten years, Australia is the fourth largest gold-supplying country in the world.

Other Minerals.—To-day gold takes only third place in the list of valuable minerals obtained each year from Australia. *Coal*—that most valuable mineral—comes first, and *silver and lead* (usually found together) second. *Zinc* comes fourth with a value less than half that of the gold produced. *Copper* is fifth on the list, and *tin* is sixth.

Apart from coal and gold, three of the most important mining regions of Australia are the *Broken Hill District* in New South Wales, where silver, lead and zinc are obtained in very valuable quantities; the *Eastern Highlands* of Queensland; and *Tasmania*. In the last two regions the majority of Australian copper is obtained.

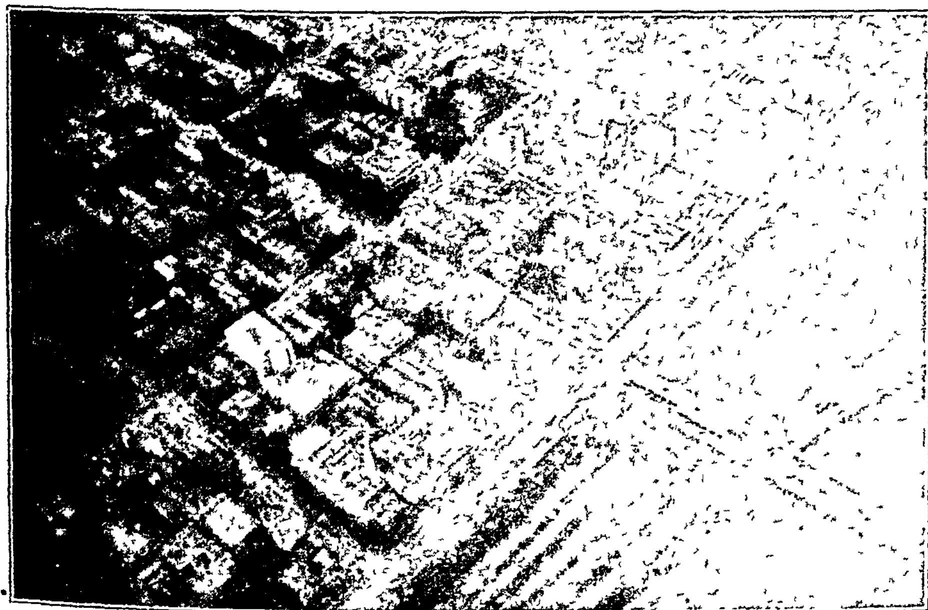
Regions with Coal and Iron.—For any country that hopes to be a manufacturing nation, coal and iron are very important. At present, Australia is a pastoral and agricultural country, but the Australians hope to be able to manufacture more and more of the goods they require.

The coal and iron are there in good quantities, ready to be used. The most important coalfield is in New South Wales, which produces more coal than any other state. This coalfield is the *Sydney Coalfield*, which stretches for thousands of square miles north, west and south of Sydney. Many pits are at work; these find work for more than 25,000 people.

Iron and Steel.—Iron-ore is to be found in many regions in every state, but at present the most important

and valuable region is at *Iron Knob* in South Australia—about 40 miles from Port Augusta. This region consists of a large hill of iron ore that can be easily mined.

This iron-ore is not used in South Australia, but is transported to the Sydney Coalfield, and particularly to



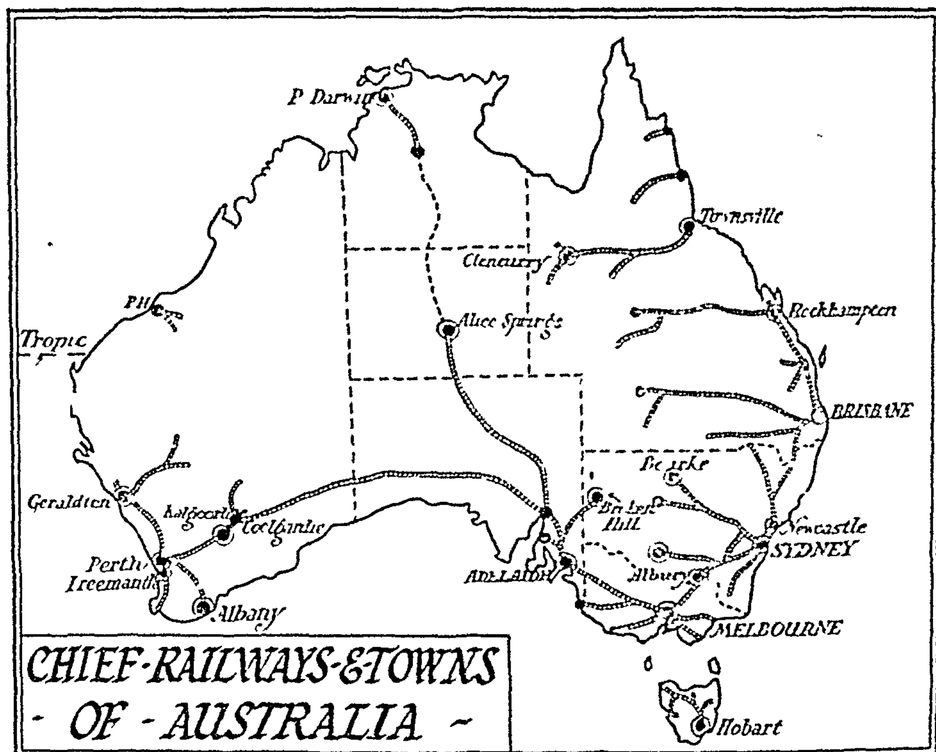
AN AIR-VIEW OF PART OF MELBOURNE.
Note the railway lines, and the set-out of the roads.

Newcastle, a coalmining and iron smelting town just north of Sydney.

Other towns on the New South Wales coalfield have blast furnaces, and produce pig-iron and steel. Next to those at Newcastle, the *Lithgow* ironworks are the most important.

New South Wales is easily the most important mining and smelting state in Australia.

Towns, Ports and Railways.—The great majority of the six million Australians live in the south-eastern coastal lands between Brisbane and Adelaide. Most of them live in towns, of which Sydney and Melbourne are



CHIEF RAILWAYS & TOWNS OF AUSTRALIA

easily the largest and most important towns and ports. Naturally, this region is the one best served by railways.

The map shows the growth of railways so far, and how they are reaching out into the heart of the land, from the towns on the coast. At present there is only one transcontinental line. This runs across the extreme south of Australia, from Perth to Adelaide. Railways from Adelaide join Melbourne, Sydney and Brisbane.

It is hoped that a transcontinental line from north to south across the desert will be completed some day. This line will follow closely the transcontinental telegraph line that already exists there.

Aeroplanes are very much used in Australia to-day, especially between regions and towns with no railways. In this way, journeys, which took many days to complete a few years ago, now take only a few hours.

The End

1. Read a book telling of Captain Cook's voyages to Australia. Write a short summary of what you read with regard to Australia.

2. Which regions of Australia are most productive at present. Why?

3. Imagine you are a worker on a sheep farm in New South Wales. Give an account of a day's work at shearing time.

4. Where do most people live in Australia? Why? Draw a map to show where most people live. Name the chief towns and mark the railways in red ink.

5. Take four blank maps of Australia in order to make maps of the sheep lands, the cattle lands, the wheat lands and the fruit lands. Put in the nearest ports.

6. Write a short account of irrigation in Australia, mentioning as many regions and places as possible.

XXV

NEW ZEALAND. SHEEP LANDS AND CATTLE LANDS

New Zealand is even more isolated than Australia, being situated more than a thousand miles to the south-east of it.

As the map shows, it is composed mainly of two islands—North Island and South Island—and a smaller one on the extreme south, called Stewart Island. Its total area is slightly greater than that of Britain, but it has a very small population—about 1½ million.

Highlands and Lowlands.—The New Zealand Islands are a part of the great system of folded mountains (see the map on page 148). Like the festoon islands of eastern and south-eastern Asia, they form part of the most unstable region of the earth. Evidences of this are particularly noticeable in North Island, on the plateau west of the mountain ridge. This plateau is famous for its active and extinct volcanoes, and for the neighbouring hot springs, geysers and large basins of boiling mud. These regions to-day are important health resorts, where people gather fresh health and strength from the healing warm waters and hot mud.

In 1931, a terrible earthquake occurred at Napier, destroying much property and killing many people.

The physical map shows that, like the Japanese Islands, New Zealand has a large proportion of mountain. These highlands form a kind of backbone to the main islands, and run from north-east to south-west. They are

closest to the east coast in North Island, and closest to the west coast in South Island, where they reach their highest point in the Southern Alps. The latter mountains run very close to the south-west coast. In the past, huge glaciers have scooped out great valleys: the coastal



SHEEP-LANDS OF NEW ZEALAND
Bringing in the sheep at shearing time

regions have sunk, and the result is a fjord coast of deep. drowned valleys, like those of Chile and Norway. In the majesty of their scenery of mountain, valley and lake, forest and glacier, these Southern Alps of New Zealand have a beauty and wonder equal to those of their namesake in Europe. Mt. Cook (12,500 feet) is the highest peak.

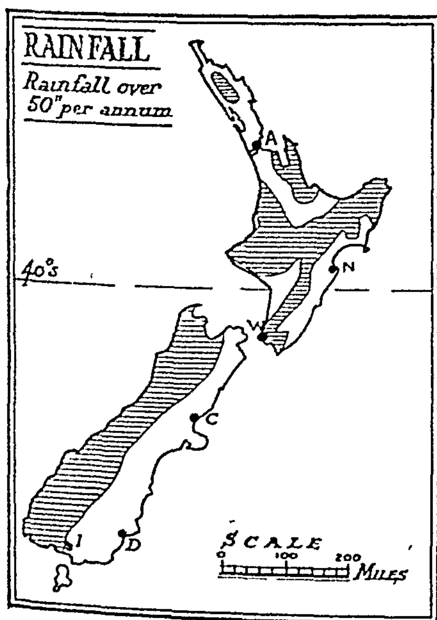
The Lowlands.—Except on the south-west, lowlands lie on each side of the mountain mass, although they are very narrow in certain regions. The largest regions of lowland are those in the neighbourhood of the Auckland peninsula in North Island, and the Canterbury Plains and the Otago Plains on the east and south of South Island. These plains are very valuable to New Zealand, as will be seen later.

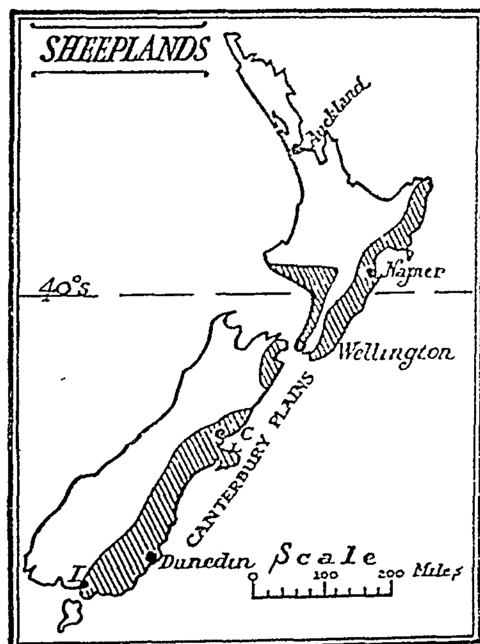
Climate.—New Zealand has been called " The Britain of the South," but its climate and vegetation is not the same as that of Britain. Its climate is warmer and more uniform. Its latitude shows that it is nearer the Equator than Britain, and that it is in about the same latitude as Italy, a Mediterranean Country. It is the *antipodes* of Spain.

Its setting in the ocean and the narrow shape of its islands cause New Zealand to receive the full temperating influence of the ocean. This, with the latitude, causes the climate to be such that its summers are not excessively hot, and its winters are very mild. It is an extremely pleasant land for British people to live and work in.

Winds and Rainfall.—Because of its latitude, most of New Zealand lies in the track of the westerly winds for a considerable part of the year. These winds bring a heavy rainfall, especially to the western coasts of South Island, for this island lies in the path of the " westerlies " all the year round. The mountains of South Island act as a great barrier to these rainbearing winds, so that while the west has a very heavy rainfall (200 inches a year at one place), the east coast receives ever so much less (23 inches at Christchurch).

North Island lies in the path of the westerlies only in winter (like most lands having the same latitude as Mediterranean lands). But it has not a true Mediterranean climate of winter rain and summer drought, because of the influence of the vast expanse of the surrounding ocean, which brings it a fair amount of rain in summer also.





Life in New Zealand To-day.—The natural wealth of the country, at present, lies in its ability to feed large flocks and herds. It is a pastoral country. The New Zealanders earn their livings mainly from the products obtained from domesticated animals, of which sheep and cattle are the most important. Ninety per cent. of New Zealand's exports are obtained from these animals.

As you would expect, most of the people live on the lowlands. These must now be studied more carefully.

The Sheep Lands of New Zealand.—The map on the previous page shows the position of the chief sheep lands. If this map is compared with the rainfall map, it is seen that the regions with the least amount of rainfall (the natural grasslands of the eastern coasts) are those used for sheep rearing. New Zealand has so many sheep that it takes fifth place in the sheep countries of the world. Which takes first place ?

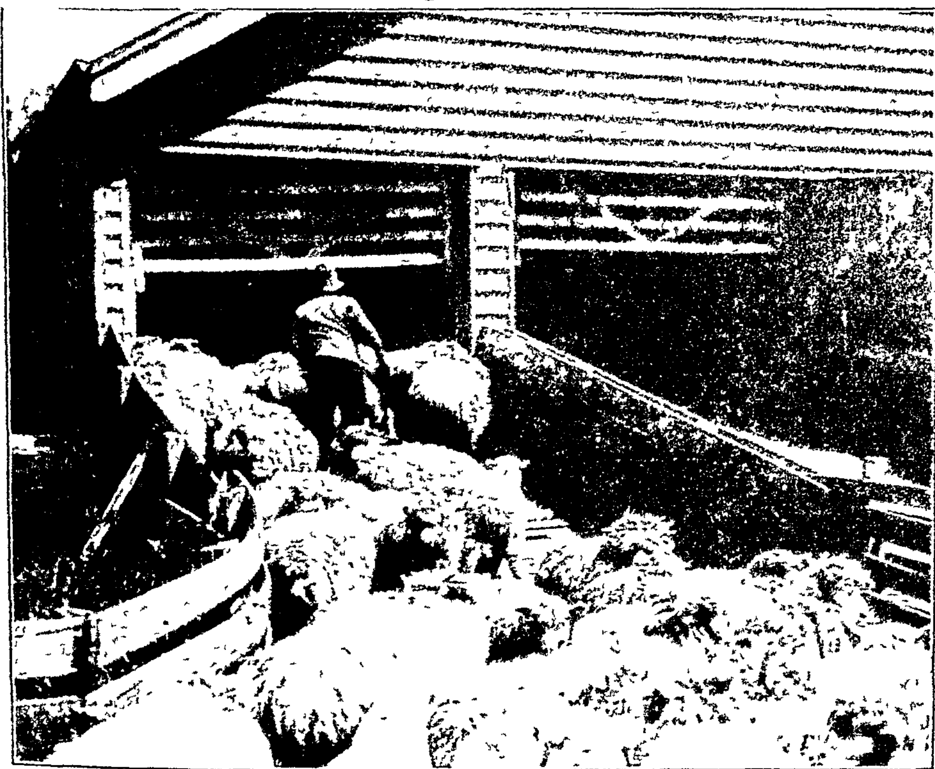
Of the sheep lands marked on the map, the most important are the *Canterbury Plains* and the *Otago Plains*, both in South Island. Of these the Canterbury Plains, with a length of 160 miles and a breadth of 30 miles, are the most famous. The rather coarse, natural grass found by the settlers has been replaced by richer and more nutritious *sown* grasses, and to-day millions of sheep live on these pastures.

Most of the people of the Canterbury Plains have work in connection with the sheep industry. Apart from the actual sheep farmers, who follow the usual seasonal routine of the industry, there are two other main kinds of work in connection with the export of the sheep products. 1. Work in connection with *the export of wool.* This covers such work as shearing, packing into bales, transport and export. 2. Work in connection with *the export of meat* and skins. This includes such work as the slaughtering of sheep, preparing the carcases for export, preparing the skins for export.

Naturally the work of many of the people of the towns of the coast is to do with the above kind of work.

Lyttelton, Dunedin and *Invercargill* are the main towns and ports that deal with the exports.

Notice how the railway follows the coast along the Canterbury Plains and joins the main towns. The forested mountain background acts as a sheltering



NEW ZEALAND SHEEP ENTERING A SHEARING SHED.

western wall to the Canterbury Plains. There are very few routes across these mountains, but a tunnel has been made, and the railway now crosses by way of Arthur's Pass, thus joining Christchurch to Greymouth.

Wellington and *Napier* are the two ports for the sheep lands of the east coast-lands of North Island.

Wool is the most valuable export of New Zealand, which is one of the world's largest wool suppliers. (Note that Australia, New Zealand and South Africa—all considered in this book—provide 60 per cent. of the world's wool.)

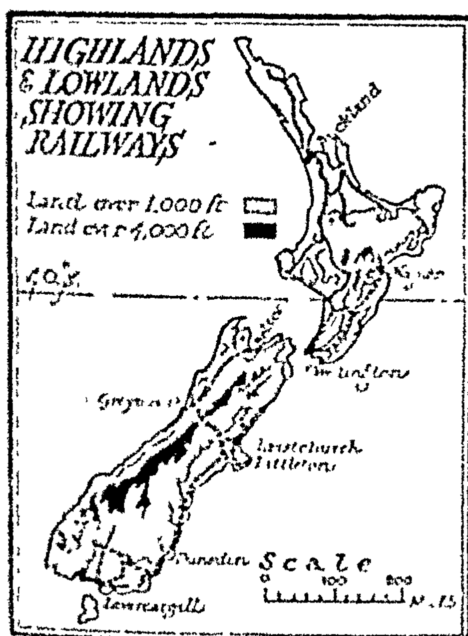


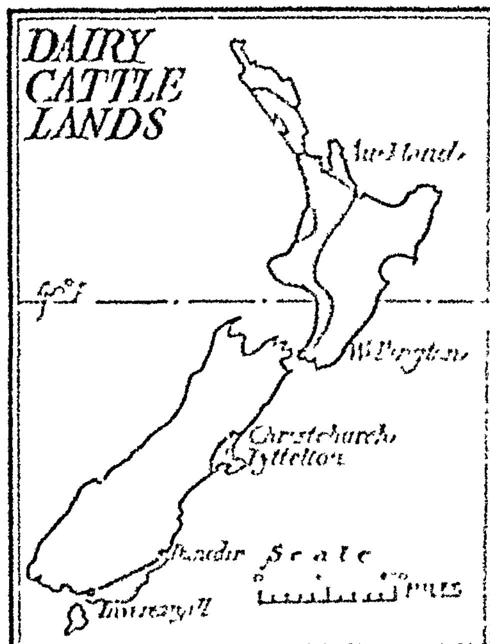
Sheep Shearers at work in a shearing shed. The shearing is done by electricity.

Frozen Mutton and Lamb.—But, to-day, the New Zealanders do not rear sheep for wool only. There is an enormous export of *frozen meat*, New Zealand being second to Argentina as the world's greatest exporter. Most of this frozen meat is mutton and lamb (Canterbury lamb), so that New Zealand is the world's largest exporter of these meats. It will be easily understood that the towns and ports of the sheep lands must have

large factories preparing these articles for export, just as the towns and ports of Argentina around the River Plate.

The Cattle Lands of New Zealand.—Next in importance to sheep rearing, with its valuable products of wool and frozen mutton, is cattle rearing and its products of meat, milk and butter, cheese and hides.





From the map it is seen that the cattle lands occupy the wetter lowlands of the north, north-west and south-west corners of North Island, and the south-east of South Island. Of these, the cattle lands of North Island are the most valuable, especially those in the neighbourhood of the Auckland Peninsula, the Taranaki region of the south-west, and the Wellington Plains. The cattle lands of New Zealand have the great advantages of a

climate that not only provides rich juicy grass all the year round, but also allows the animals to keep out in the air in winter as well as in summer. This saves much money, for the cattle require few buildings and less men to look after them.

Dairy Produce.—Dairy cows are the most valuable of these cattle. The export of dairy produce is so important



A Dairy herd in New Zealand.

to New Zealand to-day that it is the second largest industry. The work is carried on by the most up-to-date methods, so that the cows are able to produce the maximum amount of cream and milk.

From this cream and milk, butter and cheese are made Enormous quantities of butter and cheese are exported from New Zealand, which actually receives more money from these two together than from the wool exported. The most modern machinery is used in the butter and cheese factories, so that these articles obtain a good price in other lands. The farmers do not make these

products themselves, but take their milk and cream to the local factory.

Auckland and Wellington are the most important ports for the export of this dairy produce. Great Britain buys the largest amount of these products, as well as most of the wool and frozen meat.

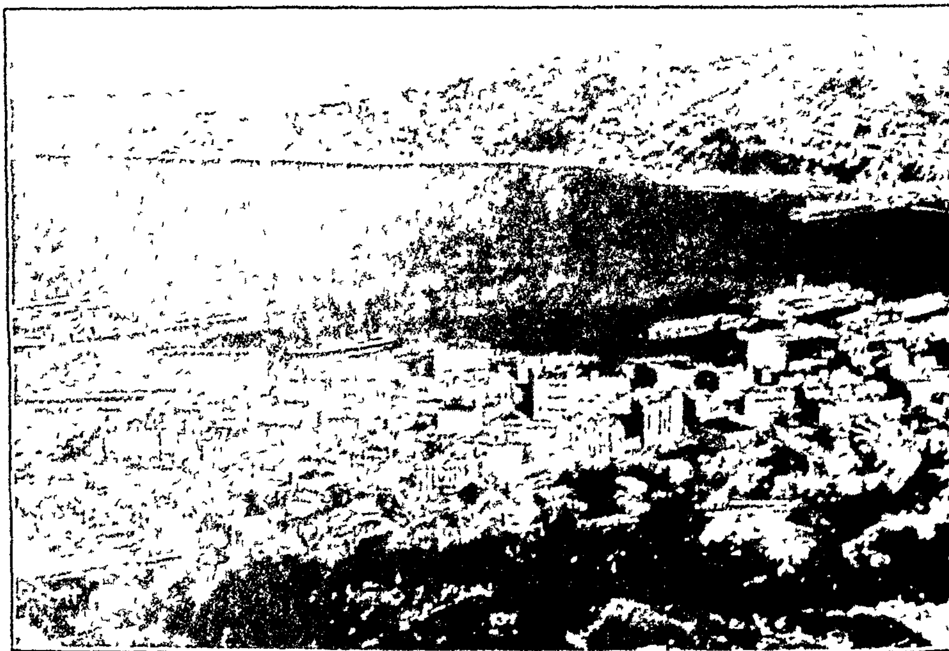


New Zealand farmers taking their milk to a dairy factory.

Manufactures.—From the above account of New Zealand, it can be seen that many New Zealanders earn their livings in the factories, where the raw produce is turned into the articles suitable for export. This preparation of animal food (meat, butter and cheese) for outside markets is the greatest industry in New Zealand, apart from the actual work on the land in looking after the animals.

There are no large manufacturing centres making such

articles as cotton goods, woollen goods, or iron goods. New Zealand leaves such industries to the great manufacturing nations of the world, and receives the goods she wants in return for the products of her pastoral industries. In connection with this matter, it must be



An Air-view of Wellington.

remembered that New Zealand has a very small population of only a million and a half people.

1. On a blank map of New Zealand, colour yellow all the lands over 1200 feet. Put in the chief towns, and mark the railways with red ink.

2. Read a book telling something of the early voyages to New Zealand, so that you can write a few notes on the first settlements.

3. Account for the position of (a) the sheep-lands; (b) the cattle-lands of New Zealand. Which are the chief ports? What is exported from these ports?

4. Imagine you are a worker in a dairy factory in North Island. Write a short account of a day's work there. Say also what you do in your spare time.

5. Use the map on p. 79 to find out two routes to New Zealand from Britain. Trace these routes on a blank map of the world.

Then mark in the route to New Zealand from Britain by way of the Panama Canal.